



# 2022 Annual Report of Pyrum Innovations AG

Dillingen/Saar

## Pyrum Group KPIs at a glance

### Results of operations and financial position

(EUR thousand)

	2022	2021
Sales	<b>982</b>	<b>922</b>
Total output	<b>19,069</b>	<b>3,701</b>
Other operating income <sup>1</sup>	<b>1,318</b>	<b>1,106</b>
EBITDA <sup>2</sup>	<b>-5,061</b>	<b>-6,530</b>
EBITDA (adjusted) <sup>3</sup>	<b>-4,776</b>	<b>-3,648</b>
EBIT <sup>4</sup>	<b>-7,615</b>	<b>-8,156</b>
EBIT (adjusted) <sup>5</sup>	<b>-7,330</b>	<b>-5,274</b>
Net profit/loss	<b>-7,808</b>	<b>-8,351</b>

### Net assets

(EUR thousand)

	31 Dec. 2022	31 Dec. 2021
Total assets	<b>49,857</b>	<b>51,321</b>
Equity	<b>31,891</b>	<b>39,699</b>
Equity ratio <sup>6</sup>	<b>64%</b>	<b>77%</b>
Available liquidity	<b>12,519</b>	<b>34,239</b>
Employees <sup>7</sup>	<b>63</b>	<b>51</b>

<sup>1</sup> Research grants, subsidies and R&D services

<sup>2</sup> Consolidated net income for the year before depreciation, amortization and write-downs, before financial result, before income taxes

<sup>3</sup> 2021 reporting period: adjusted for flotation costs (EUR 2,882 thousand)

2022 reporting period: adjusted for costs of the secondary listing (EUR 285 thousand)

<sup>4</sup> Consolidated net income for the year before financial result, before income taxes

<sup>5</sup> 2021 reporting period: adjusted for flotation costs (EUR 2,882 thousand)

2022 reporting period: adjusted for costs of the secondary listing (EUR 285 thousand)

<sup>6</sup> Equity/total assets

<sup>7</sup> Annual average

## Table of contents

### The company

Letter from the Executive Board .....	4
Introduction to Pyrum Innovations AG .....	9

### Combined management report 2022

Profile of the Group and of Pyrum Innovations AG .....	19
Economic report .....	32
Opportunities and risks of future development.....	42
Supplementary report .....	50

### Annual and consolidated financial statements for 2022

Consolidated balance sheet .....	52
Consolidated income statement .....	54
Consolidated cash flow statement .....	55
Consolidated statement of changes in equity.....	56
Balance sheet of Pyrum Innovations AG .....	58
Income statement of Pyrum Innovations AG .....	60

### Combined notes to the financial statements

I. General Disclosures on Pyrum Innovations AG and the Group.....	61
II. Scope of consolidation .....	62
III. Principles of consolidation .....	62
IV. Accounting policies .....	63
V. Balance sheet disclosures .....	65
Consolidated gross statement of changes in non-current assets .....	66
Statement of changes in fixed assets .....	67
VI. Income statement disclosures .....	72
VII. Related parties .....	74
VIII. Cash flow statement disclosures .....	75
IX. Significant events after the balance sheet date .....	75
X. Other disclosures .....	76

Independent Auditor's Report.....	78
-----------------------------------	----

**Dear Sir/Madam,**

We are delighted to be able to report on the progress and innovation we achieved in 2022 despite the challenging times we find ourselves in. Who would have imagined, at the start of 2022, that the once-in-a-century event that was the Covid-19 pandemic would be followed almost immediately by a war at the heart of Europe, causing unprecedented human suffering and enormous economic challenges? On top of this, there were further uncertainties such as how to limit global warming due to climate change.

Yet there is almost always one right answer to all of these questions: the worst thing we can do is nothing at all. This is precisely what drives us at Pyrum: to learn from crises so that we can emerge stronger. There is so much we can learn from the past, but we use this knowledge far too infrequently or succumb to fatalism and say “that has never worked anyway”. This is exactly how we felt about pyrolysis, Pyrum Innovations AG’s core business. We faced the same doubts on countless occasions after founding the company: “This won’t work anyway”; “generations of engineers have found this an impossible nut to crack”, “pyrolysis has theoretically existed for hundreds of years, if it worked we would already have plants”. Strictly speaking, all of these statements are true, but they neglect a vital component: time. The time was not yet right and we lacked the technical know-how to make the technology truly stable and profitable.

Today, we have reached a point that an entire industry revolves around. Pyrolysis is THE future for the plastics and rubber industries and leading experts reckon that in ten years’ time almost all new car tyres will contain recycled materials obtained from pyrolysis. That makes now the perfect time to invest and set the course for the future.

### **2022 – a year of many challenges but also many targets achieved**

Let’s move on to the greatest successes of 2022. First of all, we were less affected by the considerable energy price hikes than other companies because we signed long-term supply agreements in good time and have now gradually switched back to spot supply. In hindsight, this strategy turned out to be the best approach.

As well as skyrocketing energy prices, we experienced other problems that we would never have considered possible at the start of 2022. Even during Covid-19, we were able to secure supplies of most components. Since the start of the war in Ukraine, however, we have gone months without deliveries of steel, pipes, cables or computer chips. Fortunately, some of these supply chains have now returned to normal, albeit at an extreme price premium. This also affected our plant expansion in Dillingen. For example, pipes were unavailable for an indefinite period in 2022 as 40% of all stainless steel pipes in Europe came from Ukraine before the Russian invasion.

Today, we can proudly and with our deepest gratitude announce that our employees, business partners, friends, shareholders and many other people, from whom we would never have thought it, have done everything they could to help us. We procured components from all over the world and found new partners such as Siemens, who helped us with components, chips and expertise, and so in the end we had all the materials and made the impossible possible. Nevertheless, it must be added that this was extremely time consuming and costly. Yet this phase also showed us that we can achieve a lot as a company if we work together.

Sharp price rises, including for steel, copper, stainless steel and electronics components, were another major focus topic in 2022. This alone has increased the construction costs for a Pyrum plant with a recycling capacity of 20,000 tonnes a year by more than EUR 5 million to approximately EUR 35 million. This is unfortunately the new reality that we have to live with. Accordingly, we conducted numerous

talks with our customers last year and this year and are proud to say that we were able to increase the sales prices of our end products to keep the profitability of Pyrum plants at the same level as before inflation and the war in Ukraine. The minimum price for Pyrum pyrolysis oil increased from EUR 150 to EUR 400 per tonne and the rCB price from EUR 650 to EUR 700 per tonne to EUR 900 to EUR 955 per tonne. It should be noted here that the new prices are base prices, not fixed prices, and may go up if energy or gas prices increase significantly. This is another milestone in Pyrum's company history, as we can now reliably maintain plant profitability at the same level.

Another extremely important success story in the reporting period was the achievement of various quality standards and certifications in the automotive industry. It is vital for us to stress that Pyrum produces new raw materials from waste that are used in safety-related components in the automotive industry. This is a major challenge for a young company, as we had to implement quality standards within a few months that other companies introduce gradually over decades. In just one year, we have established a certified quality assurance and quality management structure and have been certified in accordance with ISO 9001, ISO 14001, ISSC+, Ecovadis and VDA 6.3 – and all this during ongoing operations. These milestones are very technical and certainly not familiar to everyone, but the VDA 6.3 Automotive Audit in particular is one of the most demanding quality audits in the world. Not only did we pass all these audits, Pyrum was also approved as a “Certified Supplier” by Schwalbe (a brand of Ralf Bohle GmbH), Continental, Pirelli, Mercedes-Benz and BMW in the last 18 months.

As well as these challenges and successes, we must not forget that we also successfully operated the first industrial pyrolysis plant 24/7. We are very proud that our main facility in Dillingen/Saar has now been operating for three years and generates huge quantities of data every day that make new plants more efficient, lower cost, more user friendly and greener. This knowledge, which grows every year, is invaluable and helps us maintain and even expand our technological edge. Together with our partner Siemens, we also programmed a virtual twin of the Pyrum series plant that new operators can use to learn how to operate a Pyrum plant in just a few days and realistically operate an entire Pyrum plant in a simulator. This also makes it possible to simulate plant malfunctions and virtually test new components and developments without having to install them in the plant beforehand. This new technology is ground breaking for us and accelerates our knowledge building by years.

Another major technical milestone in 2022 were the various research and development projects in which we are already working on new areas such as carbon fibre-reinforced plastics (CFRP), polyurethanes (PUR), bicycle tires and hydrogen etc. All research projects are going extremely well and only recently our first semi-industrial CFRP recycling plant was put into operation. Thanks to Pyrum CFRP recycling technology, in the future it will be possible to manufacture new wind turbines from old ones and to fully recycle aircraft. This will open up new high-volume markets for us.

Finally, we would like to address an issue that has led us to rethink things in 2022 and has very much been on our minds on the Executive Board. After the war broke out in Europe, investments were stopped, prices rose as a result of inflation, interest rates were raised and capital markets proved very sensitive. These problems are not new and all of us are now very familiar with them. As a growth company, we have to respond to these and look for alternatives to finance and drive the future roll-out of technologies with new plants. This challenge was one of the biggest talking points for us as the Pyrum Innovations AG Executive Board and we ran through every conceivable scenario several times with our partners. Ultimately, however, most scenarios consistently come down to the same question: do we want to become dependent on a large company or do we want to retain our independence and flexibility? For us as the Pyrum Executive Board, it was clear from the outset that we cannot improve the world with one tyre manufacturer alone, but that we must remain flexible, especially when it comes to used tyre procurement and tyre manufacturers, so that we can work with all manufacturers

in the future. This allows us to establish volume flows that can make our company a market leader. The situation is quite different for end products such as our oil and rCB. These require us to meet high safety standards so that these raw materials cannot be purchased by just anyone, and it takes years before these raw materials can be used by new customers. Accordingly, when it comes to our roll-out plan and financing it is crucial that we keep in mind that input must remain as flexible as possible, that output sales are ideally secured for several decades and that these purchase guarantees are suitable as collateral. Against this backdrop, we are working flat out to finance the roll-out plan and have developed various options that we expect to share with you later this year.

### Future outlook

The development opportunities for our company have never been better. We finally have all the building blocks in place not only to be able to build numerous plants, but also to have the certainty that our technology is stable and that we can consistently manufacture the end products over long periods of time. We also know where we can make changes to make our end products even more valuable. Here, we work exclusively with premium partners and cooperate with companies including Continental, Schwalbe, BASF, Michelin, the Fraunhofer Institute, Siemens and many more. The question is no longer whether Pyrum's end products can be used, but how quickly quantities can be ramped up.

One of the most important issues for 2023 and beyond is the supply of rCB to various customers. This helps us prove that our rCB really can be used in new tyres, plastics, pigments and chemical products, etc. Diversification, as opposed to relying on one purchaser or sector, is extremely important to us. We have already reported initial successes here and the first rCB quantities were sent to Schwalbe in February 2023. Since May 2023, Pyrum has also regularly supplied Continental. Tests are also underway in the pigment industry, in the chemical industry and at numerous tyre manufacturers at the same time. In June 2023, the "Schwalbe THE GREEN Marathon" is expected to be the first bicycle tyre made of 100% Pyrum rCB in many bicycle stores in Europe. We expect many other tyre models from other manufacturers to follow shortly, as we already passed supplier audits of Pirelli and Hankook this year and are working on initial products with the pigment industry. All of this means that, at the beginning of 2023, we overcame the last major hurdle since pyrolysis came into existence: we have proven that all our end products can be turned into new, high-quality products that will find buyers in the market. We are unbelievably proud of these successes!

We also began operating a recycling system to make new tyres out of old bicycle tyres with Schwalbe in mid-2022. For this purpose, bicycle tyre return boxes were tested at 50 bicycle stores in Germany, which are emptied regularly by our partner Emons. The test phase ended in June 2022 and was then opened up to all bicycle stores across Germany. By April 2023, almost 1,800 bicycle stores had signed up to the new collection system. We did not expect success on this scale and, together with Schwalbe, we intend to further expand the system in the future. Overall, there are about 6,000 bicycle stores in Germany and within the space of a year we have collected almost one third of all old bicycle tyres in the country. Unfortunately, we cannot currently accept any more bicycle tyres at present. However, we are already working on solutions to increase the volume by at least three-fold in the next five years, as we are already receiving inquiries from bicycle stores across Europe that also want to recycle their bicycle tyres and help make old bicycle tyres into new ones. In addition, Schwalbe is already working on the use of even larger proportions of rCB in new bicycle tyres and on entire tyre series made of 100% Pyrum rCB.

For us, however, the most important issue for the future is the expansion of our plants and, in turn, the massive increase in recycling capacity. More and more workshop chains want to have their tyres recycled by Pyrum and more and more automotive manufacturers want to support our circular approach. We already recycle end-of-life tyres from Mercedes-Benz and BMW workshops in the region at our main facility in Dillingen/Saar. As well as the automotive manufacturers listed, other automotive brands and various major workshop chains and disposal companies from across Europe have sent us inquiries. We are currently working hard on new plants in Homburg, Bremen, Antwerpen, Albstadt and Leipzig etc. to expand our capacity. As well as demand for recycling services, there is also increasing demand for end products. As things stand at present, BASF alone requires oil from 17 Pyrum plants, which translates into 100,000 tonnes of oil a year and annual sales of at least EUR 40 million. The corresponding quantity of rCB would generate minimum sales of just over EUR 100 million a year. In the medium term, BASF has already announced its intention to increase purchase volumes in line with the expansion of our production capacity.

Finally, we would like to discuss the current status of the most important plant construction projects with a focus on projects already underway.

In the expansion of our main facility in Dillingen/Saar, the construction of the shredder plant was completed with and trial operation is running since the end of April 2023. The pyrolysis plant is also complete and is expected to start cold commissioning at the end of June. Construction of the power generation plant is also underway. Here, the biggest delivery delays were caused by special heat exchangers, which were delivered eight months late.

For our planned plant in Homburg, we were awarded the last “prime plot” in the “Hinter der Remise” industrial park on 9 February 2023. Following negotiations, the preliminary contract with the city of Homburg was signed on 10 May 2023. Planning and approval work began in the same week. We aim to start construction by the start of Q4 2023.

In our planned joint venture with Unitank, one of the largest tank storage providers in Germany, with whom ten joint plants are planned, the first construction plot has already been identified and planning work has begun. In addition, there are already plans to have electricity and gas supplied by the local utility.

We founded a joint venture – REVALIT GmbH – for another plant and provided six-figure seed capital. The sub-contractor for the approval procedure was commissioned but the initial plot at the port in Straubing could not be built on due to restrictions in the development plan. Several new construction plots are currently being assessed and we intend to complete the approval procedure for a new plot in the third quarter of 2023.

As regards our four planned plants in Norway, Sweden, Finland and Estonia, our partner Polyfuels, a Norwegian project developer, is currently working on financing for the plants. BASF supports the projects by committing to purchasing the oil and provides project financing to Pyrum.

A plant is also to be built and operated in Albstadt in cooperation with the company Korn Recycling. Initial planning work is complete, business plans have been drawn up and financing talks are underway. Pyrum has developed a solution here that we will share with you if successful.

As well as these plants, another ten plants are in the early stages of planning and negotiation. These projects are located in the UK, Belgium, Czechia, Greece and Italy.

## Letter from the Executive Board

We would like to sincerely thank our employees, colleagues, partners and backers for everything we have achieved and their great work in the last few months and years. We are looking forward to a successful future with our team and stand by our goal of being one of the largest polymer disposal companies in Europe.

Warm regards,



Pascal Klein

Kai Winkelmann



Michael Kapf

The Pyrum Innovations AG Executive Board



## THE COMPANY – OPERATING ACTIVITIES

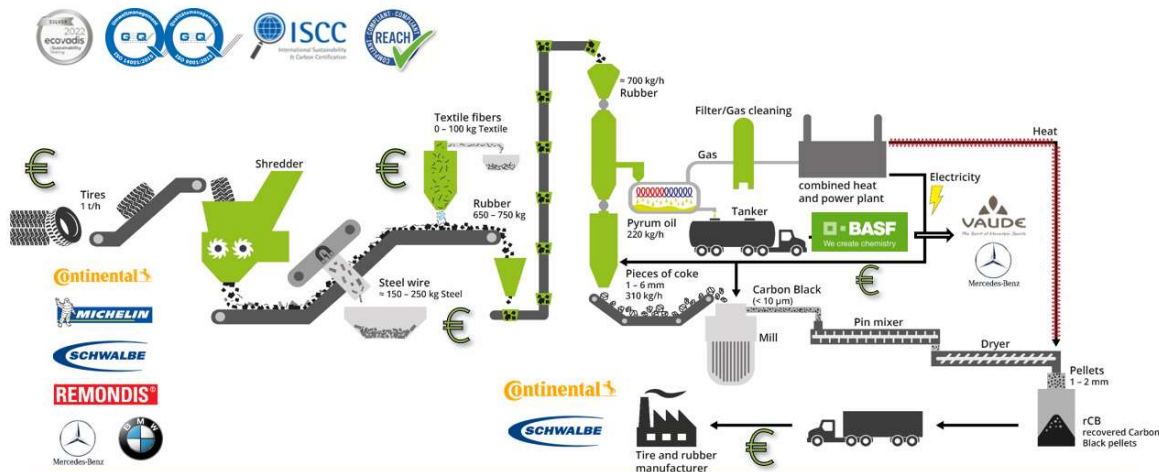
### Operating activities

Pyrum Innovations AG operates with its patented pyrolysis technology in the attractive recycling market for end-of-life tyres. Pyrum's pyrolysis process is energy self-sufficient, saves significantly more CO<sub>2</sub> emissions, according to the Fraunhofer Institute, than the recycling processes normally used for end-of-life tyres today – especially compared with incineration at cement plants – and uses waste as input materials to produce new raw materials such as pyrolysis oil, gas and recovered carbon black (rCB). Pyrum thus closes the recyclable material loop and pursues a sustainable business model.

A trailblazer, Pyrum Innovations AG was the first company in the end-of-life tyre recycling sector to obtain, back in 2018, REACH registration from the European Chemicals Agency (ECHA) for the pyrolysis oil it produces. The oil is thus recognised as an official raw material that can be used in production processes. In addition, Pyrum has obtained ISCC PLUS certification for its pyrolysis oil and rCB. Both products are thus classed as sustainable and renewable raw materials. Based on the ISCC PLUS certification (since 2021), we can confirm to our customers that the secondary raw materials originate from sustainable production.

These successes have also been recognised by international experts in the tyre industry. For example, Pyrum won in the *Best Tyre Recycling Innovation* category at the inaugural Recircle Awards and has been nominated for the 'Grand Prix Mittelstand' by the German state of Saarland on more than one occasion.

## Value chain



This diagram presents an example of how one tonne of tyres is processed. In order to guarantee the product safety and quality of our end products, we operate our own crushing plant. We can thus monitor and manage the volume flow as well as the quality of the input materials.

The disposal fee that Pyrum receives for accepting the tyres is used to cover the running costs of the tyre crushing plant (shredder).

The proportions of steel, textiles and rubber that are recovered vary depending on whether truck, car or bicycle tyres are being processed. The tyre wire that is recovered can be directly reprocessed into new products at steel plants.

The pyrolysis reactor is energy self-sufficient and operated using electricity generated from the conversion of the pyrolysis gas recovered during the process. More than 150 heat sources thus ensure optimal and controllable distribution of the temperature in the reactor. This is the basis for producing high-quality pyrolysis oil and recovered carbon black (rCB) repeatedly over the long-term.

As there are no moving parts in the reactor, unwanted inflows of oxygen, which can arise in conventional processes such as batch ovens or rotary kilns, are consistently excluded. An optimal pyrolysis process is thus guaranteed.

The waste heat created by the in-house electricity generation can be used for the process to dry the rCB pellets, which results in an additional CO<sub>2</sub> saving compared with the current recovery mix for end-of-life tyres.

With the delivery of the pyrolysis oil to BASF, which manufactures high-quality products from it, and the use of our rCBs in tyre production, optimal recycling is achieved.

In the tyre market, more than 1.6 billion new tyres are sold each year around the world.<sup>8</sup> A roughly equal volume of tyres thus reach the end of their lives. According to the German Federal Environmental Foundation, this amounts to around 570,000 tonnes per year in Germany alone.<sup>9</sup> In comparison, a standard Pyrum pyrolysis plant with three reactors will in the future have a recycling capacity of around 20,000 tonnes of end-of-life tyres per year. At the same time, a study by TU Leipzig has shown that there is already a recycling gap of 100,000 tonnes of end-of-life tyres in Germany alone today.<sup>10</sup> This gap could grow to 350,000 tonnes as early as 2025, according to the study. Half of end-of-life and used tyres in the EU are currently transported abroad.<sup>11</sup> The illegal dumping of tyres has also increased sharply in Germany in the last few years.<sup>12</sup> The deficit in recycling capacity could further reinforce these trends and result in rising disposal costs. Demand for the acceptance of end-of-life tyres thus remains high.

Moreover, increasing attention is being paid to sustainable products in the context of the transition to renewable energy, the need for which has been reinforced even further by the energy crisis in the past year. In the course of a life cycle assessment, the Fraunhofer Institute confirmed to Pyrum that the company's pyrolysis process saves up to 72% more CO<sub>2</sub> compared with the current recycling mix in Germany. Pyrum can thus deliver a decisive contribution to the desired transformation of the economy.

---

<sup>8</sup> BlackCycle Project: press release of 3 September 2020

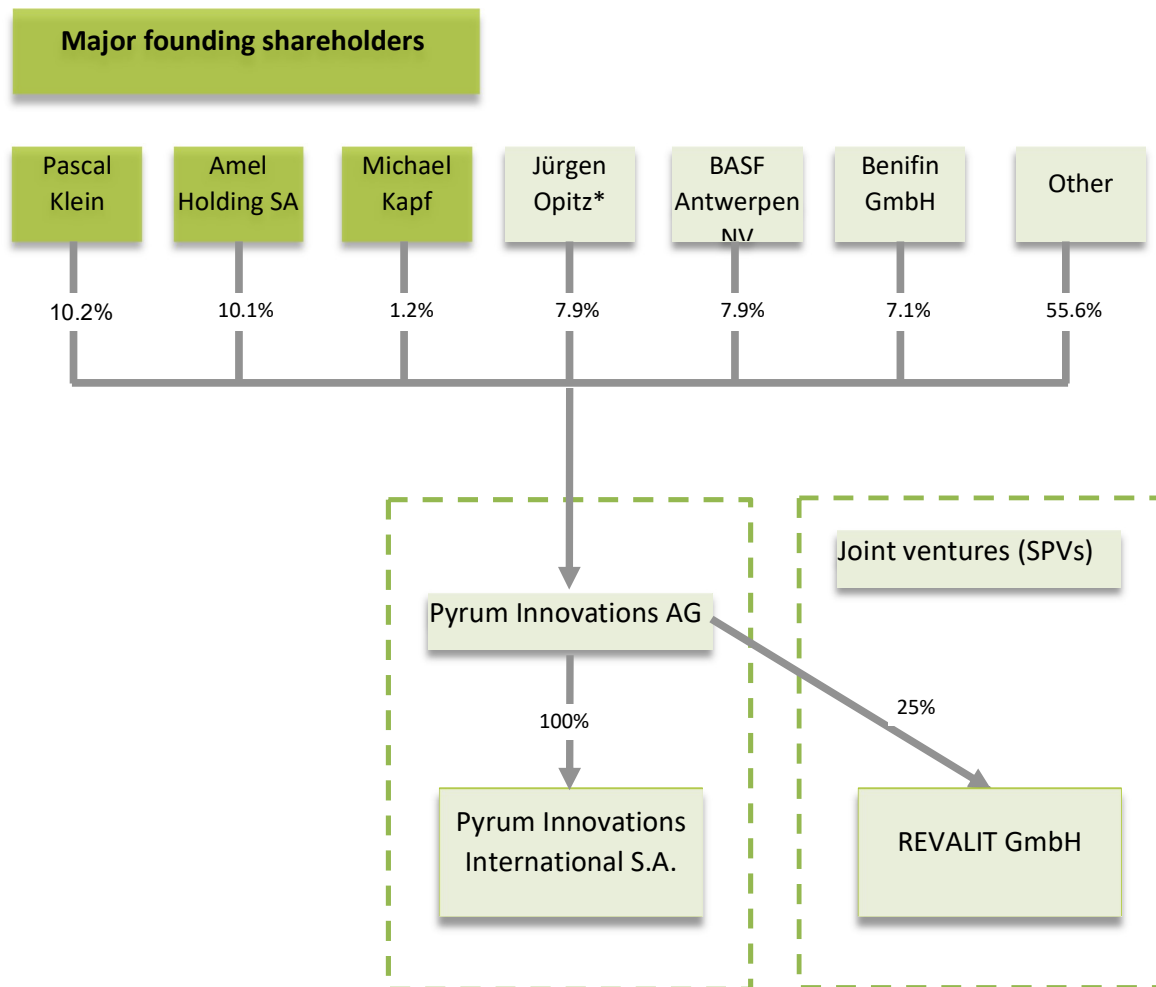
<sup>9</sup> German Federal Environmental Foundation: press release of 13 August 2021

<sup>10</sup> TU Leipzig: Azur Studie (2021)

<sup>11</sup> World Business Council for Sustainable Development (WBCSD): Global ELT Management (2019)

<sup>12</sup> ZARE initiative: press release of 25 January 2022

## Major shareholders and Group structure as of 31 December 2022



Approximately 3,500 shareholders were recorded in the share register as at 31 December 2022.

- ▶ Pyrum Innovations AG, based in Dillingen/Saar, Germany, runs the operating business, while Pyrum Innovations International S.A., based in Schengen, Luxembourg, owns the intellectual property and all patents.
- ▶ Pyrum Innovations AG has licensed the intellectual property of Pyrum Innovations International S.A.

\*Including attributable shares

### Our certificates

Pyrum was established with the idea of closing the loop.

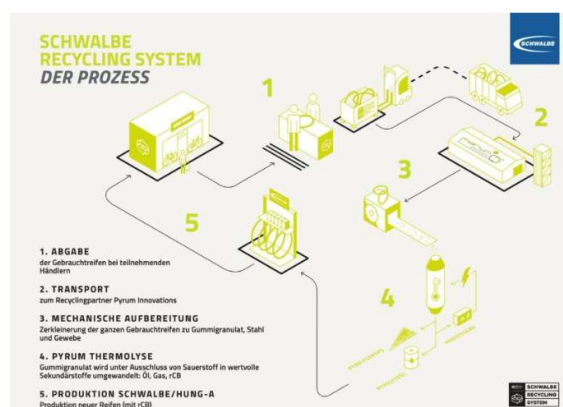
We took our first step in 2021 through the partnership with BASF and our ThermoTireOil. Thanks to our **ISCC+ certification** (since 2021) based on the mass balance system, we guarantee transparent traceability of the oil production right down to the source of the end-of-life tyre.

We have also been able to guarantee this traceability for rCB for over a year now (since March 2022).

Thanks to the **disposal company audit** that we passed in February 2023, we can create a recycling loop with Mercedes. In the future, Pyrum will manufacture pyrolysis oil from the end-of-life tyres at Mercedes used car centres, which will then be used to produce BASF plastics, and these will in turn be installed in Mercedes vehicles.

We have also created a similar cycle with Schwalbe – Ralf Bohle GmbH.

Their bicycle tyres are collected through a return system at the point of sale (POS) and brought to us for recycling. The rCB produced from them is used by Schwalbe to manufacture new tyres.



We began to restructure our company from top to bottom in 2022. We initially started with the quality management system (**ISO 9001**). We were thus able to prove to our customers that our processes can guarantee quality. This system was again expanded to cover the requirements of the VDA, enabling us to take our first steps in the automotive industry. Two tyre manufacturers have already licensed us as a supplier based on the **VDA 6.3 audit** that we passed.

For example, we can – following the successful commissioning of the new crushing plant – also close a loop with tyre manufacturers at three levels here:

- When an end-of-life tyre is crushed, up to 75% of it is turned into rubber granulate, which we then pyrolyse completely. We produce around 50% of rCB from this, which is reused in tyres.
- New steel wire for the tyre industry is produced from the steel that is separated during shredding (up to approximately 25%). Additional reprocessing of the steel wire enables it to enter the regulated scrap market. With a purity of over 98%, the steel wire can be marketed as new steel scrap.

This means that up to 60% of the recycled end-of-life tyre goes back into a new tyre.

- At the third level, Pyrum closes the energy recycling loop for the pyrolysis process by converting the pyrolysis gas into electricity.
- As a result, our pyrolysis process is not so heavily affected by volatile energy prices.

We passed the annual recertification process without any deviations, and received positive feedback, in 2023.

- “The management system is put into practice”
- “The employees continue to play their part with enthusiasm; they are proud of their work”
- “Very well trained and committed employees overall”

These statements from the audit report underline our success so far as a team.

Environmental protection and sustainability are two of the most important challenges of our century. That is why we added the factor “Environment” to our existing quality management systems and underwent **ISO 14001** certification in 2023.

In the course of **introducing the environmental management system**, we tackled the subject of supply chains and sustainable procurement. We developed our own **supplier code of conduct** and defined **ESG criteria for selecting suppliers**.

We help our customers become more sustainable by also addressing climate protection and supply chains. For example, we won a **silver medal** in the **EcoVadis sustainability ratings** in 2022.



## Pyrum Innovations AG's digital twin



*From the digital model to the physical plant*

The digital twin reproduces a physical processing system using mathematical models.

In modern plant engineering, process engineering plants are designed and validated using calculations and simulations. This simulation data can already be used during the engineering phase for other valuable processes.

### **Virtual commissioning**

The commissioning phase of a plant is generally tightly synchronised. Initial tests are often conducted in this phase and corrections are made to minor planning errors in the plant and software engineering.

This work can already be carried out in advance using a digital plant model. Plant workflows can already be fundamentally coordinated with each other and optimised here.

### **Operator training**

The start-up phase of a processing plant is generally supported by the engineering personnel of the plant manufacturer. The operator's personnel often receive instruction and training during this phase. This ties up valuable capacity on the part of both the plant manufacturer and the customer and frequently results in additional workloads and, as a result, a higher susceptibility to errors. Using a digital twin, this work can already be carried out in the run-up to the plant's commissioning. Plant operators are introduced to the plant equipment in a controlled environment and get to know the process as well as the process control system. Operators can already be prepared and trained for malfunctions and error states in advance. These states cost valuable production time in processing plants and arise only rarely. Using a digital twin, it is possible to conduct regular training programmes to refresh the personnel's knowledge and keep it consistently at a high training level as if they had just finished their original instruction. Moreover, the operating personnel can play an active part in the commissioning, as they already know the processes and control procedures.

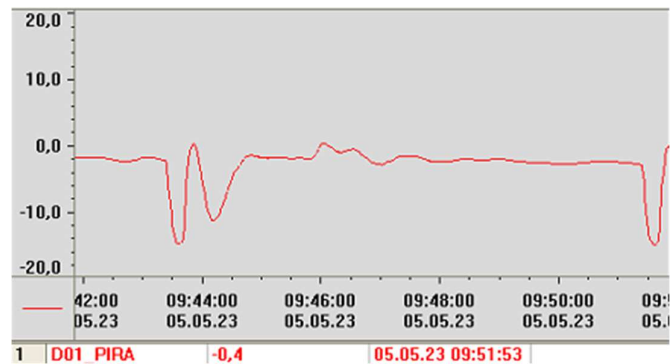
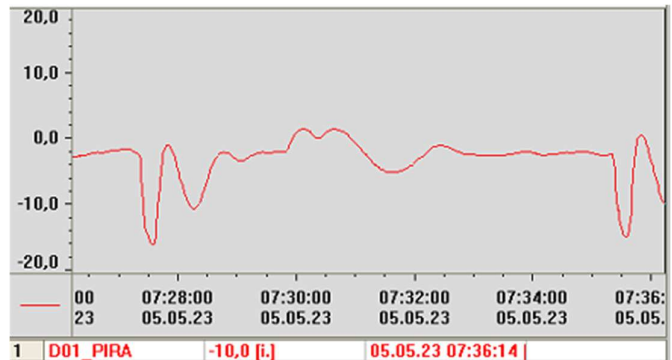


## Optimisation

Not every operation and process is generally stable in processing plants. In the majority of cases, control units are continuously battling with the process to compensate disturbance variables and to guarantee constant plant and product parameters. In some optimisation procedures, however, these processes have to be taken to the limit of their stability. But in production facilities, this is often not possible for safety and availability reasons.

With a plant model that has been validated by process data, the processes can be safely conducted up to these limits and optimised digitally. This takes place in parallel with the production process and does not have any negative impact on plant availability or product quality.

Using the available live data, the processes can subsequently be carried out and monitored by the twin. This enables economic operating points to be found accordingly, while the product quality can be predicted and guaranteed.



## Engineering/scale-up

In many cases, a digital twin that is already used in the early engineering phase can provide valuable information or even the basis for further engineering steps. The knowledge that is gained can be used far beyond the initial planning of a plant. Process engineering plants are generally “living objects” that are optimised and adjusted throughout the entire life cycle of the plant.

All adjustments can be checked using the digital map to ensure they are feasible and economically viable before any cost-intensive implementation. This significantly minimises the planning risk and ensures the success of a project.

## Summary

A digital twin can be used in a number of ways throughout a plant’s life cycle.

Valuable and complex information is recorded in a digital map and can be used in interfaces, such as the operator training system. Constant feedback between the real and the digital process guarantees that valuable data is provided that can save both the plant manufacturer and the customer precious time for optimisation, training and commissioning. Pyrum plans to continue to develop the digital twin and to offer customers training and ongoing instruction concerning the thermolysis plants in the future, thus generating a further commercial benefit from the development.



## Our guiding principles

At Pyrum, we started addressing the social issues surrounding the problem of waste disposal and the shortage of raw materials at a very early stage.

To this end, we have developed an innovative thermolysis process and the necessary technology to establish a circular economy for the production of tyres. The low-impact pyrolysis process for end-of-life tyres recovers carbon black (rCB) in particular, which is then reused in the production process for new tyres. In addition to rCB, other raw materials such as pyrolysis oil are also recovered during the process, which can be used as a sustainable alternative to crude oil in the chemical industry.

By closing the energy loop – as a result of converting the pyrolysis gas into electricity – we offer our partners a sensible solution in both ecological and economic terms.

To build on our success story so far, we have set ourselves a number of business targets, which we intend to achieve as a team.

### **Customer satisfaction**

We want to permanently change the market by making it 'circular'. Our customers are therefore required by contract to use our products exclusively to manufacture new, sustainable products and not to use them as energy sources themselves or sell them on to third parties. In order to enable these partnerships based on trust, we work closely together with our customers and define a common direction in joint research projects.

### **Innovation and continuous improvement**

Research and development are of paramount importance for us. In the most varied of projects around the world, we conduct research into new opportunities for establishing further circular economies. Innovations and continuous improvement provide a basis for us to tap into new markets, to shape them, and to improve our own performance. We actively encourage ideas and initiatives from our employees.

In order to guarantee the continual development/improvement of our product quality and our environmental performance, we have implemented an integrated management system and had it certified in accordance with ISO 9001 and ISO 14001. The management is committed to maintaining and further developing this system.

### **Environmental awareness and sustainability**

With regard to our customers and in research and development, we make sure that the recycling of resources and the production of environmentally friendly products are in the foreground of our economic activity. In order to continue meeting all binding obligations, we cooperate closely with the authorities and are already taking further measures to protect the environment and consumers of the future.

### **Satisfied employees**

A motivated and satisfied team is the foundation of our economic success and our growth. We provide our employees with opportunities and challenges and allow them to participate in our shared success. We see the health and safety of our employees as a valuable commodity. Reasonable investments – among others in occupational health and safety – therefore obtain prompt and straightforward approval.

# Combined management report 2022

Profile of the Group and of Pyrum Innovations AG ..... 19

Economic report ..... 32

Opportunities and risks of future development..... 42

Other disclosures..... 50

## Market, competition and customer relationships

Pyrum Innovations AG recycles end-of-life tyres with its patented pyrolysis technology, obtaining new raw materials such as recovered carbon black, pyrolysis oil and gas. Consequently, the company operates in the recycling market for end-of-life tyres. According to a study by Bryan, Garnier & Co, this market is still characterised by a high degree of fragmentation.<sup>13</sup> There is still no leading company on the European market at the moment. Moreover, the sub-market for the output factor rCB remains underdeveloped and therefore offers major opportunities for development for Pyrum. The high demand from industry for sustainable raw materials and production processes as well as tightening regulation, especially in the EU, are also creating attractive conditions.

Pyrum obtains the input factor, end-of-life tyres, from workshops, tyre manufacturers, waste disposal firms or municipalities. According to the World Business Council for Sustainable Development (WBCSD), around 3.4 million of the 30.9 million tonnes of end-of-life tyres arising globally every year can be attributed to Europe alone.<sup>14</sup> And around 570,000 tonnes arise in Germany. These volumes of end-of-life tyres are additionally expected to continue growing over the next few years as a result of increasing electromobility. In Europe alone, this offers Pyrum the potential to use pyrolysis to sustainably recycle nearly 1.5 million tonnes of end-of-life tyres per year and thus introduce them to the circular economy.

The current recycling mix for end-of-life tyres in Germany is made up of the recycling of materials, accounting for a market share of 52%, the incineration of end-of-life tyres in cement plants (42%) and refuse derived fuel (RDF) power plants (6%). Major CO<sub>2</sub> savings are already achieved through the material recycling of end-of-life tyres to produce playground surfaces and sports grounds from rubber granules (infill), for example. But the Pyrum pyrolysis process, including the use of waste heat, exceeds these savings by 187 kg of CO<sub>2</sub> equivalent per tonne of end-of-life tyres. Furthermore, the Fraunhofer Institute confirms there is a significantly limited market potential for this material recycling – at 52%, it has already reached its maximum market share right now, which will be very difficult to expand. Pyrum Innovations AG is not currently aware of any competitors in tyres pyrolysis that does not operate on the basis of existing batch oven/rotary kiln processes and that maintain operations 24/7. Previous findings indicate that competitors are still operating test facilities that could be scaled up at a later date.

Stricter regulations at the EU level and in the individual member states will additionally result in more restrictive handling of end-of-life tyres. For example, the rising carbon price triggered by European emissions trading means is making the incineration of end-of-life tyres much more expensive as time goes on. In addition, disposing of end-of-life and shredded tyres in landfill is now prohibited in the EU. Countries such as Belgium, Finland, Norway and Sweden have also forbidden the incineration of rubber products and the use of shredded tyre granulate in the open – on playgrounds or sports grounds for example. In 2022, moreover, the EU SCHEER (Scientific Committee on Health, Environmental and

<sup>13</sup> Bryan, Garnier & Co: Tire pyrolysis – Solving a global environmental issue

<sup>14</sup> World Business Council for Sustainable Development: Global ELT Management (2019)

Emerging Risks) identified the potential presence of polycyclic aromatic hydrocarbons (PAHs) and heavy metals in end-of-use tyres as an underestimated potential risk.<sup>15</sup> Finally, approaches such as extended producer responsibility (EPR) require producers and distributors of products to consider the post-consumer phase of a product and thus enable a functioning circular economy. The EU is thus responding to the increasing scarcity of resources and incorrect handling of waste that have mostly negative consequences for people and the environment.

In line with this, Pyrum Innovations AG is seeing consistently growing demand for its sustainably produced raw materials such as pyrolysis oil and rCB, which has only increased since the outbreak of the war in Ukraine. The reason for this is that Germany imported around 60% of the total processed carbon black from Russia before the war. Carbon black is used as a raw material in numerous sectors, for example in the tyre industry for the production of new tyres, but also in the plastics and electronics industries. The growing demand for recovered carbon black is being encouraged by the fact that many international tyre manufacturers have set themselves ambitious sustainability targets. The Continental Group, with which Pyrum Innovations AG entered into a contract for the delivery of carbon black in March 2023 after lengthy negotiations and preparations, aims for example, to use 100% sustainably produced materials in its tyre production by 2050.<sup>16</sup> The same target is being pursued by the French tyre manufacturer Michelin, with which Pyrum has conducted research into a circular economy for the efficient recycling of end-of-life tyres in the EU-funded BlackCycle project since 2020.<sup>17</sup>

Overall, Pyrum Innovations AG thus operates in a very attractive market. At the same time, Pyrum is in demand both as a sustainable disposal purchaser of the input material end-of-life tyres and as a supplier of sustainably produced raw materials. Pyrum AG intends to play an important role on this rapidly growing recycling market for end-of-life tyres.

---

<sup>15</sup> Scientific Committee on Health, Environmental and Emerging Risks Statement II on emerging health and environmental issues (2022)

<sup>16</sup> Continental AG: Vision 2030

<sup>17</sup> Compagnie Générale des Établissements Michelin SCA: The Vision Concept

## PROJECT STATUS REPORT

### Expansion DILLINGEN TAD 2&3



In 2022, we continued to drive and prioritise the works planned since 2020 and started in 2021 to expand the thermolysis plant at the location in Dillingen as planned. The project progress was characterised by major challenges in the supply chains for plant components and by sharp price increases, especially in the steel construction sector and in energy costs, which resulted in rises in the price of plant components. Despite these difficulties and challenges, the construction work on the thermolysis recycling plants 2 and 3 continues to make consistent progress.

The section below describes the construction progress of individual plant components in the financial year, including the current status.

#### Groundworks and foundation work

The groundworks and foundation work for the core components, such as the reactor tower and major parts of the ancillary facilities and the construction of the fuelling site were successfully completed in 2022. At the time this report was drawn up, the foundation works for the gas-based electricity generation were in the process of being accepted and approved, which means that the work on the external facilities, such as the additional tyre store and road stabilisation on the property, can be started in the next phase.

### Buildings

The construction work on the halls, the building of the silos, the construction of the thermolysis towers and the new control room have been completed. In accordance with the current health and safety requirements, a control centre, staff social facilities, showers, toilets and changing rooms have been installed covering an area of around 380 m<sup>2</sup>, which will in future allow the plant to be operated continuously around the clock seven days a week. The new control centre has been designed in such a way that the existing plant and the plant extension will be monitored from a central location by the teams in the future. The new control room is expected to be acquired in June 2023.

### Tyre crushing plant

The delivery of the new tyre crushing plant (shredder) and the start of the commissioning works on it was originally supposed to take place in October/November 2022. This was delayed by approximately six months as a result of procurement problems at the manufacturer involving various plant components and the control technology. The plant was in the process of being commissioned at the time this report was drawn up in May 2023. The start of regular operations is currently planned for June 2023. Higher tyre acceptance quotas starting from July 2023 have already been fixed and agreed with suppliers. It will then be possible, as planned, to refine the tyre wire from the new plant and, through further processing, from the previous crushing plant and improve the steel purity substantially, which will result in significantly higher sales proceeds for the tyre wire in the future.

### Thermolysis tower

The two new thermolysis reactors were built in the year under review and installed in the thermolysis tower in February 2023. As things currently stand, the planned heating elements will be assembled and installed in June 2023 and the reactor insulation will subsequently be mounted.

The pipe system in the tower and the cable runs have also been successfully installed. The installation of the switch and control cabinets as well as the last works on the cabling in the tower are expected to be finished by June 2023.

As things stand today, cold commissioning will start with the loop checks at the end of June 2023. The simulations in the digital twin are already under way to provide support. The launch of the ramp-up phase with gradual increases in production volumes is planned from August/September 2023.

The delay to the original plan to start the first commissioning works by the end of 2022 can be attributed among other things to the hazard and operability (HAZOP) analysis that was subsequently commissioned and which led to the rescheduling of some plant and electronics components. There were also delivery delays involving important plant components.

The HAZOP analysis was commissioned in order to increase the plant's series production capability. This safety standard is being demanded ever more frequently by Pyrum's customers and is expected to reduce the planning time for the follow-up works in the future and make planning processes for required industrial standards easier. The HAZOP standard additionally allows Pyrum plants to be constructed almost anywhere in the world, including in customers' high-security plants.

### Power generation and supply facilities

The combustion chambers for converting the pyrolysis gas created in the process into electricity was delivered and installed in April 2023. The plant is currently undergoing electrification.



There were delays primarily in the supply of the heat exchangers, which are required for the gas-based electricity generation using the turbines that have been ordered. The turbines, including the heat exchangers, were ordered in March 2022, with delivery originally promised for November 2022. Despite Pyrum's greatest efforts to shorten the delivery time, the global logistics and supply chain problems made it impossible to deliver the components on time. Due to the particular requirements relating to the material there is a limited selection of suppliers. As a new order would have reset delivery times to the beginning, there was consequently no option to procure the heat exchangers from another supplier again at the time the delays were announced at the end of 2022. However, a network of alternative suppliers has been set up in parallel over the last few months to provide more flexibility in switching to back-up suppliers in the future. The installation of the first three of five turbines is currently expected in Dillingen at the end of June 2023.

The works on the supply facilities, such as the medium and low-voltage substations, as well as the completion and commissioning of the other supply units (especially for gas and water) have been concluded. This ensures on the technical supply side that the thermolysis units can already be brought on stream before the gas-based electricity generation is completed, if necessary.

### **Other ancillary facilities and connection of the plant components**

The fuelling tank and the pipe bridges from the tower to the tank (including pipelines and X-ray tests) were successfully completed in May 2023.

### **Coal grinding plant and pelletisation**

A basic requirement for ordering a new coke grinder and pelletiser for the expansion in Dillingen was the successful commissioning of the pelletiser, including improving the grinding quality, at the existing TAD 1 plant in Dillingen. Both the required grinding quality and the throughput volume and hardness grade of the pellets were challenges for the commissioning, which was started in March 2022. The solution ordered for the existing plant was used at Pyrum for the first time on the market. At six months, the implementation period was therefore significantly longer than originally planned. The laboratory and plant tests of the tyre manufacturers were subsequently carried out over four months. Approval from Continental for the supply from the plant was granted in March 2023 and corresponding purchasing agreements were finally signed, so that it was now possible to make the first deliveries to another tyre manufacturer in addition to Ralf Bohle GmbH (Schwalbe tyres).

A second grinding technology (jet mill) will be used for the plant extension in Dillingen in the future. In connection with the development cooperation with Continental, Pyrum's internal Research and Development department discovered that this will open up additional application possibilities and a further significantly higher sales market will thus be created for the future. To this end, a laboratory mill of another manufacturer was initially tested and the result was trialled with future purchasers in order to ensure that the investment is in line with customer requirements. Following positive feedback, the new TAD 2 and 3 jet grinder was ordered from this manufacturer in April 2023. Delivery and start-up of the new grinder and pelletisation are currently planned for the second quarter of 2024.

## Current (customer) projects in plant construction

At the same time as the new construction at its own site, Pyrum's team is also working on planning for several new plant construction projects to advance the roll-out of the patented technology and to quickly create additional recycling capacity at additional sites.

### **REVALIT GmbH**

The first customer joint venture (SPV) was founded on 10 June 2022 under the name REVALIT GmbH in collaboration with MCapital GmbH, TEXTOR GmbH and Auer Holding GmbH. Pyrum Innovations AG's stake in the share capital amounts to 25%. The purpose of the company is to build and operate a Pyrum plant. After the company was entered in the commercial register, a property at the port in Straubing was secured and a pre-engineering agreement (contract value of EUR 350 thousand) was concluded with Pyrum Innovations AG, which includes the preparation of required approval applications.

While the approval documents were being drawn up and enquiries were being made about all the site-specific conditions, it turned out at the end of March 2023 that, because of restrictions that were subsequently identified, especially concerning the area that could actually be developed, construction on the property that was initially planned was not reasonably feasible. It was therefore decided in March 2023 not to pursue the location any further. New potential locations/land are currently being examined for their suitability by the REVALIT GmbH management. The planning and preparatory works already carried out can be used again.

### **Company plant in Homburg an der Saar**

The agreement of the city council of Homburg an der Saar was received in February 2023, and preparations to submit a preliminary building application and the first pre-engineering planning steps are now under way at Pyrum in order to produce a basis for drawing up the approval documents that is as valid as possible before the applications for approval are prepared and to be able to move quickly from the planning phase into the implementation phase. A reservation agreement was entered into with the City of Homburg in May 2023, which also already includes an agreement on the purchase price and the infrastructure development costs. The creation of the approval documents already began in May 2023.

### **UNITANK**

The Memorandum of Understanding (MoU) entered into with UNITANK Betriebs- und Verwaltungs GmbH in September 2022 envisages implementing up to ten joint plants by 2030. A suitable site has already been identified for potentially the first joint project and discussions have already been held with local government representatives and utility companies in order to co-ordinate which special site-specific features will need to be taken into account and to ensure the supply to the public grid in the required extent at an early stage. In collaboration with our partner UNITANK, extensive preliminary work is already in progress at the project level for the pre-engineering, the drafting of a business plan and preparations for the ownership structure planned in the future for a potential joint venture for building and operating a plant. In parallel with this, UNITANK is already holding discussions with future suppliers for the tyre input and with potential customers for the end products.

UNITANK is a leading oil logistics company. UNITANK was founded more than fifty years ago on the basis of long-term storage contracts for Germany's strategic reserves. The Hamburg-based company now operates seven large tank farms in Germany and Belgium and handles approximately six million cubic metres for its customers every year.



**Other projects**

Consistent progress is also being made in the due diligence activities for the additional customer projects that are already anticipated. Moreover, Pyrum is now already looking for the next site for another plant of its own.



## Research and development

In Pyrum's own interest, research and development is one of our core competencies. The activities serve to improve our own expertise and products, ensure Pyrum's technological advantage and guarantee the quality of the products we deliver.

To explore additional application areas for our technology, Pyrum operates an experimental laboratory of its own, which, alongside the advancement of the application areas for our own technology, is also used for customer research projects and thus generates additional sales. The public funding that is committed usually covers up to 70% of the respective project costs, sometime more in individual cases.

The research focuses on homogeneous input materials, for which there are currently few to no solutions for circular material cycles. This produces major opportunities in markets that, from a technology perspective, it has not so far been possible to tap commercially.

Pyrum Innovations AG has launched several promising research and development projects in the last few years. The results are encouraging and in many cases suggest that commercialisation will be possible in the future.

Regular cooperation with external parties and universities takes place in order to exploit the greatest possible level of expertise for these developments and to stand consistently at the cutting edge of research. In addition, regular exchanges are held with suppliers of key components as well as with customers so that innovative topics and trends and individual requirements can be taken into consideration in any development at an early stage.

After a development time lasting almost four years, Pyrum Innovations AG has now put into operation, in the second quarter of 2023, the first automated, semi-industrial recycling plant for carbon-fibre reinforced plastics (CFRP) and thus fully recycled CFRP for the first time in the world. The plant is located at the main facility in Dillingen/Saar and will be used as the cornerstone for the construction of an industrial plant. Discussions with interested parties are already under way.

Discussions with potential interested parties were also held in the period under review and are continuing in 2023 in the area of the extraction of hydrogen in order to agree the requirements of potential customers relating to the quality and the purity of the desired hydrogen.

## Profile of the Group and of Pyrum Innovations AG

### Research and development

Pyrum is currently conducting the following significant R&D projects:

#### *ZIM-Schwalbe*

“Recycling of end-of-life bicycle tyres for reuse as raw materials in new and sustainable bicycle tyres”

In contrast to car and truck tyres, worn-out bicycle tyres are currently almost exclusively disposed of in residual waste, and most of them are sent for thermal recycling, which leads to a steadily increasing and irreversible loss of raw materials. Together with Ralf Bohle GmbH (Schwalbe tyre brand) and Cologne University of Applied Sciences, Pyrum Innovations AG is researching a sustainable solution to this problem. The aim of the cooperation project is to develop a raw material recycling concept for old bicycle tyres with a view to creating a closed-loop economy. In addition to production waste, a collection system designed by Schwalbe is to be used to feed used tyres directly from the end user to the pyrolysis process after shredding. The resulting gas can be used to generate electricity so that the entire process can be energy self-sufficient. The pyrolysis oil is intended to serve as a substitute for crude oil in the chemical industry. The recovered carbon black (rCB) is to be fed back into the manufacturing process for bicycle tyres. Cologne University of Applied Sciences is investigating the incorporation of rCB into rubber compounds for inner tubes for bicycles. The product properties of the prototypes produced in this way will then be examined by Schwalbe.

The Pyrum Innovations AG team focuses on the development of the optimal process parameters for the pyrolytic recycling of bicycle tyres. The aim is to provide high quality products for the best possible use in bicycle tyre production.

The project partners are:

1. Ralf Bohle GmbH
2. Cologne University of Applied Sciences

*=> After the scope of the analysis was defined, Schwalbe delivered the first 20 tonnes of bicycle tyres to Pyrum as early as October 2021. With its “Schwalbe” brand, Ralf Bohle GmbH has successfully introduced a logistics system for the return of bicycle tyres. A series of experiments to optimise the process parameters for acquiring high-quality products on a laboratory scale using a batch system and a continual system for characterising the products was carried out in 2022 and is now complete.*

*The rCB that has been obtained is being analysed by the project partner in the current year 2023. The products will then be jointly assessed using the measurement results and the optimal process conditions for pyrolysis will be defined by Pyrum based on the rCB characterisation. It is intended in the future to transfer these process parameters to an industrial scale for recycling bicycle tyres.*

### Infinity

#### “Technology Transfer Programme Lightweight Construction”

Since as early as 2019, Pyrum Innovations AG has been looking into the question whether the increasing problem of disposal, for example of wind turbines and car bodies, could be solved using the pyrolysis process. After initial basic research in-house, a funding project was submitted. The project was launched on 1 January 2021. It will run for two and a half years. The aim of the “Infinity” project is to develop, establish and demonstrate a sustainable process cycle for carbon fibre composite materials using novel recycling technologies, materials and processing methods, as well as the substitution of the carbon fibre primary material with high-quality recycled and bio-based materials for significant reductions of CO<sub>2</sub> in lightweight construction.

Pyrum is responsible for the recovery of high-quality carbon fibres (CF). These are processed into rCF tapes in the project consortium, generating a raw materials loop.

The project partners are:

1. Altex Textil-Recycling GmbH & Co. KG,
2. Textechno Herbert Stein GmbH & Co. KG,
3. Kraus Maffei Technologies GmbH,
4. German Institutes of Textile and Fiber Research Denkendorf,
5. Fraunhofer IGCV,
6. Coriolis Composites GmbH,
7. CTC GmbH,
8. V-Carbon GmbH

*=> The basic and detail engineering of the continuous laboratory facility for the recycling of CFRP was completed in 2022. A laboratory container has been set up and equipped with safety mechanisms, as has a laboratory unit for the operation of the facility. The construction of the continuously operating laboratory facility has been completed and a process control system has been developed and implemented. Commissioning with CFRP input material from the automotive industry has started. There is already great interest in the technology, which adopts an innovative and integrated recycling approach, both from processors of CFRP plants and from CFRP manufacturers.*

After a development time lasting almost four years, Pyrum Innovations AG has now put into operation, in the second quarter of 2023, the first automated, semi-industrial recycling plant for carbon-fibre reinforced plastics (CFRP) and thus fully recycled CFRP for the first time in the world. The plant is located at the main facility in Dillingen/Saar and will be used as the cornerstone for the construction of an industrial plant.

**ZIM (Zentrales Innovationsprogramm Mittelstand) – PUR**

“Recycling of end-of-life polyurethanes in a two-stage process comprising hydrothermal carbonisation followed by pyrolysis”

The aim of the project was to develop a two-stage recycling process for end-of-life polyurethane combined from hydrothermal carbonisation (HTC) with subsequent pyrolysis and accompanying analysis for closing the loop and product recovery. The focus was on the production of products and their testing for suitability as saleable raw materials such as carbon black, expanded graphite and activated carbon. Furthermore, liquid products from the combined process are to be used as substitutes for fossil raw materials.

The team from Pyrum Innovations AG was responsible for the second thermal treatment of the combined recycling process. Here, the pyrolysis process was optimised in a targeted manner to recover valuable raw materials in high quality on a laboratory scale.

The project partners are:

1. Hochschule Trier - Umweltcampus Birkenfeld
2. SBKS GmbH
3. Eurofoam Deutschland GmbH

The parameters of the pyrolysis stage were determined on the basis of the series of experiments. Due to the product composition, mixing the PUR with biomass proved expedient for significantly increasing the product quality. Pyrolysis cokes were investigated for possible use as activated carbon, carbon black and/or expanded graphite. Pyrolysis oils were also tested to assess their use as substitutes. Once the pyrolysis gases are characterised, they could be classified as *suitable for conversion into electricity*.

*=> The project was successfully completed on 30 September 2022 with a final report and full processing in accordance with the project schedule, the series of experiments is complete; products have been characterised and pyrolysis process parameters optimised and adjusted to full decomposition. A very active dialogue was held with a major chemicals company regarding the use of the acquired pyrolysis oil. The pyrolysis coke has been investigated for material recycling. A concept for a two-stage process for recycling PUR on a pilot scale has been developed. In the current year 2023, there is an exchange with the project partners on the application of the results following the construction of a demonstrator system on a pilot scale.*

### BlackCycle

“Recycling of end-of-life tyres for reuse as raw materials in new and sustainable car tyres”

The goal of the European BlackCycle project is to create a closed-loop economy for the efficient recycling of used tyres. The consortium, represented in five countries, is to develop a sustainable process to recycle recovered materials from scrap tyres back into new tyre production. This includes the collection and selection of raw materials from scrap tyres as well as the optimisation of pyrolysis, oil refining and utilisation.

The Pyrum team focused on the further development and adaptation of the pyrolysis process on a laboratory and industrial scale. The aim was to obtain products with customised properties for ideal further utilisation with the highest possible quality from end-of-life tyres.

The project partners are:

1. Manufacture Française des Pneumatiques Michelin
2. Aliapur
3. Axelera
4. Ethniko Kentro Erevnas Kai Technologikis Anaptyxis
5. Agencia Estatal Consejo Superior de Investigaciones Cientificas (CSIC)
6. Estado Umweltservice GmbH
7. HERA HOLDING HABITAT, ECOLOGIA Y RESTAURACION AMBIENTAL S.L.
8. International Center for Advanced Materials and raw materials of Castilla y León (ICAMCyL)
9. Institut National de l’environnement et des Risques (INERIS)
10. Orion Engineered Carbons GmbH
11. Quantis Sàrl
12. Sisener Ingenieros SL

*=> Following the implementation of the series of pyrolysis and distillation experiments on a laboratory scale, product samples have already been delivered to project partners. The results have already been successfully translated from laboratory scale to an industrial pyrolysis plant in 2021. In the same year, 10 tonnes of pyrolysis oil were delivered to the project partners in 2021. Additional large batches of pyrolysis oil from large-scale industrial production were delivered in 2022. The plant parameters determined at laboratory scale were again applied at the industrial scale. The transfer of the parameters to the industrial pyrolysis plant enabled the successful production of pyrolysis oil with the composition required for the industrial production of carbon black. For this purpose, 10 tonnes of pyrolysis oil were initially produced in February 2022 and 50 tonnes from the beginning of April to mid-May and delivered in line with the project timetable.*

*Pyrum’s work in the project has thus been successfully completed in full. An ongoing discussion with the project partners is in process concerning the manufacture of high-quality carbon black from the oil produced, which is used as a raw material substitute in new tyres from Michelin. These new tyres are intended to consist largely of raw materials that have been obtained from end-of-life tyres, thus closing the raw materials loop.*

### ÖkoCap

The two-year ÖkoCap project involves researching the economic, technical and ecological potential of recycled carbon fibres (rCF) and rCF non-wovens in comparison to glass fibres, steel or, for example, aluminium. The aim is also to determine the effective relationship between the economic, ecological and technical levels for individual processes and routes in order to be able to identify the effects of various levers (e.g. various process parameters).

Pyrum Innovations AG participates in the ÖkoCap project in working group 1 on the shredding and recycling of carbon-fibre-reinforced plastics. Complementing the Infinity project, a detailed life cycle assessment (LCA) analysis is also being conducted in the ÖkoCap project.

- Investigation of further process parameters for the identification of control levers
- Contribution of new findings to the LCA analysis after completion of the Infinity project
- LCA analysis (as well as profitability analysis) of the scale-up process → Target is in-house facilities that are observed, i.e. a scale-up level from the laboratory scale

The project is being implemented with in-house facilities that are much larger than the usual laboratory facilities. This project enables Pyrum Innovations AG to expand the network in the composite area along the process chain to potential customers and future project partners

*=> Data on the laboratory facility for CFRP (Infinity project) were included in order to feed it into a multi-criteria assessment model for researching the economic, technical and ecological potential of rCF and rCF non-wovens in comparison to glass fibres, steel, or, for example, aluminium. This assessment model was used in the course of the project as the basis data for developing an app. This app has been developed and estimated values from the chemical recycling by Pyrum are being entered in the model. Real operating data from the Infinity project is expected to be included in the current year 2023.*

### Extracting hydrogen from the pyrolysis process

Pyrum Innovations AG also contributes to the mobility revolution. Among other things, the company is a partner in the “Future Campus Hydrogen” initiated by the district of Saarlouis. The plan is for Pyrum to supply Kreisverkehrsbetriebe Saarlouis GmbH (KVS GmbH) with hydrogen for buses. After initial tests to extract hydrogen from the gas Pyrum obtains by recycling end-of-life tyres using its pyrolysis technology, Pyrum is optimistic that it will be able to offer solutions here. Various studies predict high demand for hydrogen in the future, particularly in the transport sector.<sup>18</sup> This offers Pyrum Innovations AG another new market with great potential. Pyrum forecasts that it will be possible to deliver relevant hydrogen buses on the necessary scale from 2026, so Pyrum can reasonably expect to invest in corresponding large-scale industrial separation technology (separation of hydrogen from pyrolysis gas) from 2025/2026.

---

<sup>18</sup> Fraunhofer Institute for Systems and Innovation Research ISI: Metastudie Wasserstoff – Auswertung von Energiesystemstudien (2021)

## Economic report

### Overview of economic conditions

Global economic developments were primarily influenced in 2022 by the outbreak of the war in Ukraine. The consequences, including an energy crisis and generally sharp price rises, put a significant strain on the economic outlook throughout the course of the year. According to the International Monetary Fund (IMF, April 2023), provisional global economic growth was 3.4% in the past year.<sup>19</sup> Performance was thus significantly more subdued than in the previous year, in which the global economy experienced an appreciable recovery from the Covid-19 pandemic and gross domestic product increased by 6.2%. Economic growth of 2.7% was achieved in the industrialised nations in 2022 (previous year: 5.4%). In the countries in the euro area, gross domestic product rose by 3.5% (previous year: 5.3%). The German economy saw slight growth at a rate of 1.8% (previous year: 2.6%). Europe in particular was heavily affected by the energy crisis and the price increases that were also triggered by the continuing disruptions in the supply chains. In Germany, the inflation rate hit an annual year-on-year average of 7.9%.<sup>20</sup> However, the first signs of easing on the energy markets became visible during the second half of 2022.

### Economic development of Pyrum AG and the Group

The most important developments in the reporting period regarding cooperations/partnerships, the main facility in Dillingen/Saar, certifications/analyses, financing as well as changes in the Executive Board are discussed below.

#### Cooperations/partnerships

A joint development agreement was signed with Continental in the reporting period, and the project design began. The aim of the joint development is to refine the rCB for the needs of the tyre industry so that the largest possible proportion of recycled materials can be used in the “tyre of the future”.

In June 2022, Siemens and Pyrum entered into a partnership that, alongside joint technical developments, also includes prioritised delivery of required components. This partnership has proven to be ideal. Siemens has provided outstanding support work in resolving supply chain problems in the chip area and also demonstrated excellent collaboration in our other joint projects, such as the development of a digital twin.

In addition, 60,000 litres of oil were produced and delivered to project partners in the BlackCycle project in the first half of 2022.

The reporting on the use of pyrolysis oil in the doorhandles of the Mercedes S-Class and on Schwalbe’s bicycle tyre recycling campaign again generated strong interest in the circular products of Pyrum Innovations AG. Initial talks commenced with many new potential customers regarding our plants and products, and samples were sent out.

---

<sup>19</sup> IMF: World Economic Outlook Update April 2023

<sup>20</sup> Destatis: press release 022 of 17 January 2023



A further milestone was the signing of a memorandum of understanding (MoU) with UNITANK Betriebs- und Verwaltungs GmbH, with the aim of jointly building and operating up to ten plants by the year 2030. Each of these plants is planned with a capacity of at least 20,000 tonnes of scrap tyre processing per plant.

November 2022 saw the start of the series delivery of recovered carbon black (rCB) by Pyrum to Schwalbe.

### **Development at the main facility in Dillingen/Saar**

Ownership of the factory grounds and the administrative building at the company's headquarters was transferred to Pyrum Innovations AG with effect from 1 April 2022. The leases of the other tenants on the property were taken on at the same time. This ensures that the company will be able to continue evolving with the greatest possible freedom at its headquarters.

In March 2022, Pyrum started testing its pelletiser. The commissioning, which had the goal of recovering material on the basis of customer requirements (hardness, size, etc.) with optimal throughput volumes and few rejects, was more protracted than originally expected. The plant was put into series production in the first quarter of 2023.

Pyrum received the notice of approval for the operation of production lines 2 and 3 at the main facility in Dillingen in Saarland in October 2022.

The Ukraine conflict has been causing supply problems for various parts required by Pyrum since February 2022. Moreover, significant price rises have been recorded that have had an impact on the construction costs for the expansion in Dillingen/Saar.

The plant construction measures in 2022 as well as the developments in the project business are described in detail in the section "Project status report".

### **Certifications/analyses**

In March 2022, Pyrum obtained ISCC+ certification (International Sustainability & Carbon Certification) for its rCB and thus reached another important milestone for its commercialisation. ISCC+ certification is a voluntary certification standard, which proves that not only the pyrolysis oil but also the rCB is sustainable and considered a renewable raw material.

In May 2022, Pyrum obtained ISO 9001 certification for its quality management in the scope of end-of-life tyre recycling, production and sales of the resulting products, research and development of new input materials and products, and plant design and construction. The implementation of and compliance with the quality management system according to DIN EN ISO 9001:2015 was confirmed by successfully passing the audit. With this certification, Pyrum meets further criteria of the tyre industry to be allowed to supply recovered carbon black (rCB).

In June 2022, Pyrum was awarded the silver medal by EcoVadis in its sustainability ratings. In addition, the Fraunhofer Institute for Environmental, Safety and Energy Technology's life cycle assessment (LCA) for the company's pyrolysis process was published in September 2022. The LCA calculated the CO<sub>2</sub> savings made by the pyrolysis process for the first time. It shows that Pyrum's process saves up to 72% of the CO<sub>2</sub> equivalents emitted per tonne of end-of-life tyres compared to the current recycling mix in Germany. The life cycle assessment is scientific proof that Pyrum not only closes the reusable material cycle but also saves more CO<sub>2</sub> than all conventional recycling processes currently in use for end-of-life tyres.

### Financing

On 30 March 2022, the Pyrum share was listed in the Scale segment of Deutsche Börse. As a legally registered SME growth market, the Scale segment offers Pyrum efficient access to national and international investors.

The second tranche of the **convertible loan** available in accordance with the milestone plan agreed with BASF was drawn down by Pyrum on 7 November 2022 and EUR 3 million was paid out to Pyrum. Upon the final commissioning of the plant extension in 2023, a third and last tranche totalling a further EUR 2 million is available for disbursement by BASF.

### Changes in the Executive Board

On 22 March 2022, CEO Pascal Klein's Executive Board contract was extended by five years to 31 January 2028. In addition, Kai Winkelmann was appointed to the company's Executive Board as CFO for three years as of 1 April 2022.

## NET ASSETS, FINANCIAL POSITION AND RESULTS OF OPERATIONS

This section jointly addresses the consolidated and annual financial statements of Pyrum Innovations AG. If individual items differ materially in the two sets of financial statements, they are presented differently.

The figures for the reporting period are followed by the respective figures for the same period of the previous year in brackets.

The net income and the net assets of Pyrum Innovations AG were essentially characterised by the high investments at the company's headquarters in Dillingen/Saar, investments in personnel, the development of organisational structures and the stock taking of the rCB produced in the expectation of generating more income in the future after relevant production capacity in grinding and pelletising comes on stream.

### Results of operations

The Pyrum Innovations Group generated **sales** of EUR 982 thousand in 2022. This represents an increase of 6.5% over the previous year 2021 (EUR 922 thousand). In expectation of significantly higher selling prices after the pelletising plant is commissioned, a deliberate decision was made not to sell the coke produced, but to add large amounts to the inventory. This development is reflected in the increase in finished goods and work in progress by EUR 277 thousand (EUR -28 thousand) in the income statement. The commissioning of the pelletising plant and the certificates that are required in order to supply the tyre industry were more extensive and time-consuming than originally expected. All the certificates required for three customers were successfully concluded in the first quarter of 2023, which enabled regular deliveries of high-quality, pelletised rCB to be commenced in May 2023.

The **other work capitalised** increased to EUR 17,810 thousand (EUR 2,807 thousand) in the course of the continuing construction of the plant extension in Dillingen as planned.

**Total output** increased year-on-year by EUR 15,368 thousand or 415% to EUR 19,069 thousand (EUR 3,701 thousand).

**Other operating income** increased by 19.2% to EUR 1,318 thousand (EUR 1,106 thousand). This resulted essentially from income in R&D, where it proved possible to obtain research grants of EUR 993 thousand (EUR 510 thousand), in particular for the BlackCycle project. Depending on the project, the research grants are offset by deliveries of oil, rCB and granulate, which were not recognised as sales because they were covered by the research grants. A total of 60,000 litres of oil with a theoretical sales value of EUR 24 thousand was provided to the BlackCycle project partners in the 2022 financial year.

The **cost of materials** includes raw materials, consumables and supplies as well as cost of materials in the amount of EUR 15,802 thousand required for the generation of own work. The recognised cost of materials therefore increased significantly in 2022 to EUR 17,653 thousand (EUR 2,584 thousand).

**Personnel expenses** increased by 21.0% to EUR 4,184 thousand (EUR 3,459 thousand) due to inflation and the increase in personnel for the upcoming growth. The increase in personnel concerned all areas of the company, as planned.

**Depreciation and amortisation** rose to EUR 2,554 thousand (EUR 1,626 thousand) as a result of the start of depreciation on completed plants at Pyrum Innovations AG. At Group level, EUR 870 thousand

## Economic report

also resulted from amortisation for patents at Pyrum Innovations International S.A. that are only consolidated from the fourth quarter of 2021, so the comparative figure in 2021 is significantly lower at EUR 217 thousand.

**Other operating expenses** were dominated in the previous year by the costs of the listing in Oslo (EUR 2,882 thousand) and, at EUR 3,581 thousand (EUR 5,285 thousand), turned out to be approximately 32.2% lower in the period under review than in the previous year. They include EUR 285 thousand as a non-recurring expense covering the costs of the secondary listing in Frankfurt in the Scale segment of Deutsche Börse as well as current costs of the stock exchange listings of EUR 243 thousand.

At EUR 212 thousand (EUR 202 thousand), **interest expenses** increased slightly year-on-year on account of the refinancing of the properties at the Dillingen/Saar location.

The **consolidated net income/loss for the year** was EUR -7,808 thousand (EUR -8,351 thousand).

## Net assets

The **intangible assets** were written down on a regular basis by EUR 905 thousand in the period under review. The value on the reporting date thus declined to EUR 6.5 million (EUR 7.4 million).

The **tangible assets** increased by EUR 19.7 million year on year to EUR 28.8 million (EUR 9.1 million). In addition to EUR 2.9 million from the land purchase in Dillingen, the key drivers here were a further EUR 17.8 million for payments on account and assets under construction that accompanied the plant expansion in Dillingen.

The **financial assets** consisted at EUR 50 thousand of contributions to the equity investments in REVALIT GmbH (SPV). In the consolidated financial statements, the equity investment was reduced by the pro rata net loss for the year in 2022.

**Total fixed assets** added up to EUR 35.3 million (EUR 16.4 million).

**Inventories** increased to EUR 389 thousand (EUR 58 thousand) on account of the newly calculated production cost as at the 2022 half-year reporting date and as a result of other increases in the stock of produced rCB in 2022.

The **trade receivables** increased slightly to EUR 147 thousand (EUR 138 thousand).

The **other assets** rose from EUR 208 thousand to EUR 1,259 thousand. These essentially involve value added tax refund claims.

At EUR 49.9 million, **total assets** are slightly lower than in the 2021 annual financial statements (EUR 51.3 million).

## FINANCIAL POSITION

### Capital structure

The **equity base** of the Pyrum Group amounted to EUR 31.9 million as at 31 December 2022 (EUR 39.7 million).

The **equity ratio** declined as a result of the consolidated net loss for the reporting period to a still very comfortable 64.0% (77.4%).

**Provisions** declined slightly due to meeting cooperation obligations to EUR 3.1 million (EUR 3.5 million). The additional provision in the Group essentially relates to inventor remuneration, which will be utilised only once Pyrum Innovations International S.A. is profitable.

The **liabilities to banks** increased as at 31 December 2022 by EUR 2.5 million to EUR 4.1 million (EUR 1.6 million). This rise was the result of the financing of the land purchase at the company's headquarters. Financing conditions adjusted to match general market performance and have otherwise not deteriorated.

The **trade payables** increased by EUR 0.5 million to EUR 2.7 million (EUR 2.2 million).

The **other liabilities** increased as at the reporting date by EUR 3.7 million to EUR 8.0 million (EUR 4.3 million). These included a grant of EUR 1.0 million for the new shredder plant at the Dillingen/Saar site that has been disbursed but not yet posted in profit or loss and the disbursement of the second tranche of the convertible loan from BASF in the amount of EUR 3.0 million which was made on the basis of a milestone being reached.

### Liquidity situation

The company continuously monitors the available liquidity and potential investment effects. To preserve liquidity, land purchases are usually refinanced in the long term in order to secure the roll-out planning.

The decrease in **cash in hand and bank balances** was marked by the investments in the expansion of the plant in Dillingen/Saar. Cash came to EUR 12.7 million as at 31 December 2022 (EUR 34.4 million).

### Cash flow statement

The cash flow statement has been prepared in accordance with the requirements of German Accounting Standard DRS 21.

In the 2022 reporting period, the **cash flow from operating activities** declined to EUR -6.9 million (EUR -3.9 million). This development was essentially caused by a lack of production sales resulting from the expansion of the workforce for the organisational structure, which has led to a higher deficit.

The negative **cash flow from investing activities** increased sharply from EUR 10.5 million to EUR 20.8 million on account of large investments in the expansion of the plant at the Dillingen site.

The **cash flow from financing activities** amounts to EUR 6.0 million (EUR 38.7 million). As well as planned smaller loan repayments, the current 2022 financial year saw a positive cash flow again, which resulted from the refinancing of the land purchase at the company's headquarters and the disbursement of EUR 3.0 million from the second tranche of the BASF convertible loan. The high previous year's figure was marked by the positive cash flow from the stock exchange listing.

The Group companies were able at all times to meet their payment obligations.

## Report on key performance indicators

### Key financial performance indicators

Pyrum Innovations AG is guided in financial terms by the key performance indicators sales, total output and earnings before interest and taxes (EBIT). Adjusted values are determined if necessary.

In addition, available liquidity is an important performance indicator. Liquidity planning and management, which is monitored closely, plays a central role here.

	2022	2021
(EUR thousand)		
<b>Sales</b>	<b>982</b>	<b>922</b>
<b>Total output</b>	<b>19,069</b>	<b>3,701</b>
<b>EBIT</b>	<b>-7,615</b>	<b>-8,156</b>
<b>EBIT (adjusted)*</b>	<b>-7,330</b>	<b>-5,274</b>
<b>Available liquidity</b>	<b>12,519</b>	<b>34,239</b>

\* adjusted for costs of the secondary listing in the amount of EUR 285 thousand in 2022 as well as costs of the IPO in the amount of EUR 2,882 thousand in 2021

Pyrum still assumed in the previous year that the commissioning of the pelletising plant would be completed within a few months and that the company thus would generate substantial sales from the ground and pelletised rCB. The rCB that was produced was therefore stored early in expectation of higher sales prices within a reasonable time frame. This expectation did not materialise in the financial year, which means that the sales and results achieved for 2022 were significantly lower than the values the management had expected in the previous year. Total output, which represents the costs of materials and own work in connection with the construction of the new thermolysis plant, i.e. newly created values, turned out higher than expected. The costs of expansion investment rose more than expected as a consequence of the increases in prices, resulting especially from the war in Ukraine. Despite this, the management decided to work as quickly as possible in this environment towards completing the plant.

In the project business with customer plants (including through SPVs), the hesitancy of the banks to finance customer projects on account of the fact that they involve a new technology stood in the way of achieving our goals.

### Non-financial targets and key performance indicators

This section discusses the non-financial targets and related activities. Definitive key performance indicators for these targets have not been yet established. Pyrum Innovations AG's current mission is shown on page 17.

### Employees

Our motivated and satisfied employees are the foundation of our economic success and our growth. We therefore provide our employees with opportunities and challenges and allow them to participate in our shared success. We provide contributions to occupational pensions, healthcare cards, bicycle leasing and a wide range of further education and training.

## Economic report

We also see the health and safety of our employees as a valuable commodity. Reasonable investments – including in occupational health and safety – therefore obtain prompt and straightforward approval. In the reporting year, more than half of our employees took part in voluntary medical screening. There were no reportable accidents in 2022 as a whole.

We also encourage team cohesion and support through many joint activities such as barbecues, company runs, and other personal and professional activities.

## Quality assurance

In order to guarantee the high quality level and the reliability of our products and services over the long term, the relevant processes in the company's operating units are regularly reviewed individually based on the respective requirements and improved as and when necessary. The relevant quality management systems are continually certified and recertified depending on requirements. The requirements of the General Data Protection Regulation (GDPR) are monitored by an external data protection officer.

The tyre is a critical safety component in a vehicle. We are aware of our responsibility as a supplier to users and have taken many steps to increase the quality and safety of our end product. We created a control plan to monitor and control each stage of manufacturing. We systematically identified risks in the process and developed ways to prevent or reduce these.

## Sustainable and corporate responsibility

An important pillar of the company's development, which is geared towards the long term, involves taking on our ecological and social responsibility. Pyrum Innovations AG endeavours to keep negative impacts of our activity on the environment as low as possible and to constantly reduce them. Pyrum Innovations AG meets its responsibility to society and its employees in a variety of ways. In addition to its cooperation with universities, Pyrum provided support to selected social institutions, such as kindergartens and a children's home, in 2022. We also support "Generation Ü" eG, which aims, for example, to address the shortage of skilled labour by hiring retirees. Generation Ü retirees, who are happy to make their services available to the community, perform tasks for companies, private households and the community. They have acquired a lifetime of expertise and professional and life experience and want to stay relevant. For Pyrum, this is a true win-win situation.

With its advertising campaign "illegal tyre dumping", Pyrum called on the public to report illegal tyre dumping. The original plan was to dispose of two of the reported landfills. In the end, we disposed of the tyres from all publicly accessible illegal dumps that were reported to us.

## Supplier selection and partnerships

Pyrum is a regional company. Our aim is to maintain long partnerships with our customers and suppliers in the region. Most of our tyre suppliers are based in Saarland or an area within a radius of 70 km. Where possible, we hire regional companies for services and trades work. We harness the synergies of the industrial area to find flexible, quick solutions with local logistics and waste disposal providers and steel and machine manufacturers. Many regional firms also had a hand in expanding the plant in Dillingen (public utilities, architects, concrete construction, valuers, steel construction etc.). We have also enshrined these principles in our procurement criteria. Sustainability is particularly important here too.

## OUTLOOK

### Future economic conditions

In its current outlook from April 2023, the International Monetary Fund (IMF) expects a significant slowdown in growth of 2.8% in the global economy in 2023.<sup>21</sup> Although there were increasing signs of easing on the energy markets especially at the end of 2022, which then also continued into the beginning of 2023, price pressure has nevertheless remained high overall, despite a slight fall in inflation. Moreover, after abolishing its Covid-19 restrictions, China recorded high levels of sickness that again dampened the economic recovery. The banking sector additionally experienced turbulence at the beginning of this year as a consequence of the sharp rise in interest rate levels. The global geopolitical situation also remains fragile.

The IMF expects a slight increase in gross domestic product of 0.8% for the euro area for 2023 as a whole compared with the previous year. With regard to Germany's economic performance, the IMF again expects economic output to decline by -0.1% after it had initially assumed in January 2023 that output would experience slight growth of 0.1%. The "Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung" (German Council of Economic Experts) expects Germany to record GDP growth of 0.2% and an inflation rate of 6.6% on average for 2023.<sup>22</sup>

### Outlook for oil / steel / rCB

According to Allied Market Research, the market volume for pyrolysis oil was around USD 320 million in 2021, equivalent to a market share of approximately 0.02% of the global crude oil market (with a market volume of around USD 1.4 trillion).<sup>23</sup> The global pyrolysis oil market is expected to grow to approximately USD 481 million by 2031, which would equate to an annual growth rate (CAGR) of 4.3%.

According to information from the World Steel Association, global demand for steel will increase by a good 2% to around 1.9 billion tonnes in 2023. It is expected here that the trend towards further falls in prices seen since the second half of 2022 will also continue in 2023.

There are still only a few publicly available outlooks for the future main product rCB. At a minimum, the company expects the price of rCB to come close to the price of virgin carbon black, which is traditionally produced from burning oil, and so prices in excess of EUR 1,000 per tonne seem realistic for rCB.

---

<sup>21</sup> IMF: World Economic Outlook Update April 2023

<sup>22</sup> Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung: press release of 22 March 2023

<sup>23</sup> Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung: press release of 22 March 2023



## Outlook for Pyrum Innovations AG and the Group in 2023

Pyrum Innovations AG also plans to make further investments in new company plants and customer plants in 2023. Forecasts of the business performance in 2023 are based on certain assumptions concerning the successful acquisition of financing, an easing of the situation in supply chains and prices for plant components and energy as well as the costs of steel construction stabilising at a high level. Against the backdrop of the great uncertainty that continues to prevail regarding the performance of the economy in Germany at the time this report has been prepared, the persistently very high inflation in the euro area, the future course of the war in Ukraine and the possible economic and financial impacts related to that, Pyrum Innovations AG assumes that the ongoing increases in the price of material, energy and financing may also have detrimental effects on its sales and earnings performance in 2023.

The company assumes that the caution of the cash-rich parties interested in the plant and of the banks regarding the more cash-strapped customers will be dispelled when the expansion facility in Dillingen/Saar is completed and begins production. Pyrum Innovations AG expects sales from the operation of the plant to increase to EUR 1.8 million to EUR 2.5 million in 2023. In view of the high level of investing activities and the planned expansion of the workforce, net income will turn out to be negative again in 2023. The company has already started pre-engineering and work on the approval process for the next Pyrum-owned plant in Homburg/Saar. Overall, it is planned to start two to three projects, at least one of which will be the company's own plant. On the assumption and the condition that the company can generate the relevant financing by the third quarter, the management expects total to reach EUR 14 million to EUR 16 million in 2023..

Financing for the construction of further plants is necessary for the planned swift growth. The core focus of the management is therefore currently directed at obtaining relevant financing commitments. As things stand today, the company has sufficient liquidity to ensure that the current costs and the completion of the plant expansion can be covered.

The company continues to pursue the goal of achieving the planned growth through a mix of organic growth based on its own plants and by participating in joint customer projects (SPVs).

Retaining good specialist personnel over the long term is also necessary for this. That is why the company is planning, on top of the offers already established at Pyrum relating to health protection, bicycle leasing, asset accumulation, a dynamic work environment and interesting opportunities for professional development, also to create performance-related incentive systems in the future that protect liquidity in order to gain recognition as an attractive employer.

## RISK REPORT

### *General business risks*

The economy in Germany and the euro area is important for Pyrum Innovations AG, but it and the global economy are subject to volatility that might have an adverse impact on the operating activities and results of operations of Pyrum Innovations AG. Pyrum Innovations AG is now about to start the roll-out phase and is reliant on functioning supply chains especially involving the components required for the plants that are planned for the future. The outbreak of the Covid-19 pandemic in 2020 and the current war in Ukraine have posed major challenges for Pyrum Innovations AG in this regard, which have been countered by expanding the supplier network and giving preference to integrating partners in the euro area.

An escalation of the Taiwan conflict, political instabilities as a consequence of the ongoing war in Ukraine, the outbreak of a new pandemic or any destabilisation of the financial system could seriously affect operating activities of Pyrum Innovations AG.

In the medium and long term, the speed of the roll-out of the Pyrum technology and thus the future business performance of Pyrum Innovations AG depends in principle on whether it can successfully maintain and strengthen its technological leadership in the area of tyre pyrolysis.

In order to ensure that it achieves its goals, Pyrum Innovations AG maintains very close and reliable contacts with its customers with regard to the end products, which are constantly being improved based on customer requirements, and with the customers in the area of plant construction. In the case of the end products, our aim is, as far as possible, not to become reliant on individual customers or, alternatively, to enter into long-term, binding supply contracts. A clear focus is directed at fully developed CIP, innovation and cost management processes. Pyrum Innovations AG constantly monitors market trends as well as the business policy of other competitors that use pyrolysis processes to recondition end-of-life tyres. In the view of the management, however, these are still in the pilot plant stage and are unable to produce in continuous industrial operation. This results in the opportunity to play a dominant role in the medium term in the area of tyre pyrolysis and other homogeneous waste flows.

With regard to the selection of the location of individual plants, Pyrum Innovations AG is dependent on political decisions, which are key for general approvals and the long-term assurance of 24/7 production, as well as potential awards of funds in connection with these investments.

### *Technology risks*

When selecting suppliers, the company is focused on opportunities and consistently opts for the delivery of new technologies in the production process. This gives rise to the risk that delivered technologies do not possess the expected level of maturity, which can lead to delays until plants commence operations.

### *Legal, regulatory, and political risks*

The company's business activities depend on the prevailing legal conditions for recycling and waste processing. These include in particular, but not exclusively, provisions of the German Federal Immission Control Act, the Saarland Soil Protection Act and the German Circular Economy and Waste Act. Future changes can influence market and competitive conditions.

The recycling market, on which the company operates, is also subject to recurrent economic and political changes. Stricter environmental regulations could result in increased expenses. Legal

amendments and new standards in the future could impede or delay the company's operations, increase the company's operating costs and reduce demand for its services and products.

The company is dependent on the reputation of renewable energy and the recycling market in general. Widely publicised failings of competitors, lawbreaking, bankruptcies or fraudulent undertakings can give the public the impression that the technology is inadequate or flawed, causes pollution, etc. In turn, this can damage the reputation of the market on which the company operates, damage the market reputation of the company, reduce its market share, and lead to a decline in the number of projects.

### *General operational risks*

Pyrum Innovations AG is exposed to general operational risks. These also include risks associated with business expansions as well as risks from disruptions to industrial operations and other interruptions to business such as strikes or other industrial action or restrictions as a result of orders issued by national authorities. These could entail adverse repercussions for the earnings and the financial position of Pyrum Innovations AG.

### **Presentation of individual risks**

The key risks from the management's perspective that could have negative impacts on the net assets, financial position and results of operations of Pyrum Innovations AG are described below.

#### *Risks from general economic disruptions resulting from external influences (conflicts, pandemics)*

The company does not manufacture the components for the construction of the plants itself. All components required for the construction of the recycling plants developed by the company are produced and assembled by third-party manufacturers.

Among other things, the planned construction of plants could be delayed as a result of the ongoing consequences of the Covid-19 pandemic, especially shortages in the supply of replacement and plant parts due, for example, to temporary closures of suppliers' production sites or absences due to staff illness.

The Covid-19 pandemic is still exerting significant effects on the entire global economy and supply chains. New, totally unforeseeable situations such as a global viral pandemic represent a risk that will have a significant influence on all areas of Pyrum Innovations AG and against which there is no protection. It cannot be ruled out that, in our globalised economy, major adverse impacts on the operating activities of Pyrum Innovations AG will arise in the medium term as a result of new pandemics. This also applies to the outbreak or escalation of political conflicts.

### *General operating risks*

The company's activities entail general operating risks that can lead, for example, to higher-than-expected costs during the construction phase, lower returns on sales and higher costs or lower returns than expected in connection with technical management. As the company's plants are new designs, there is an inherent risk that the plants require improvements or adjustments that could slow down or restrict their operation. Additional design considerations could also be necessary in order to guarantee safe and reliable operation. There is always the risk that unforeseen events or circumstances that are unknown to the company, its partners and counterparties occur in a way that jeopardises the essential conditions for development and production. Moreover, it cannot be ruled out that unforeseen technical difficulties arise at the recycling plants operated or sold by the company.

Such general operational risks could therefore considerably impair the future economic performance of the company and thus the company's net assets, financial position and results of operations. Pyrum has acquired experience over the three years of continuous operation and is now able to estimate and optimise cost development and the technical control parameters of the plants.

### *Dependence on industry-specific approvals and certificates*

Pyrum Innovations AG's business success also depends, among other things, on obtaining the industry and country-specific approvals and certificates as well as complying with stipulated standards and technical directives that apply to the introduction of new products and technologies. Should Pyrum Innovations AG not be able to develop products and processes that meet these requirements or receive the approvals necessary in the relevant country, this might have an adverse impact on Pyrum Innovations AG and its operating activities.

### *Approval risks*

The construction and operation of recycling plants requires various approvals (e.g. building permits, environmental regulations, etc.) depending on the locations in Germany and abroad. There is a risk that such permissions cannot be obtained or can be obtained only with unforeseen, adverse side conditions, were granted ineffectively, are successfully contested, or are subsequently withdrawn or limited for other reasons. When transferring approvals, there is a risk that authorities or other third parties do not approve these transfers and approvals/licences therefore are or become void. Approvals for the operation of a recycling plant often entail environmental requirements, non-compliance with which results in sanctions or withdrawal of the approval. A necessary transfer of a licence or permit can be ineffective despite approval from the authority responsible, or the approval can apply only to a part of the transferred licence or approval. The occurrence of one or more of these risks can have substantial negative effects on the company's net assets, financial position and results of operations. Pyrum therefore enters into dialogue with all stakeholders as soon as possible after a potential location has been identified, regardless of whether it is for a plant of the company's own or a potential plant for a customer.

### *Dependencies on raw material and energy prices*

Pyrum Innovations AG's pyrolysis process is energy self-sufficient. An increase in the prices for raw materials and energy can nevertheless lead to higher production costs, especially in the operation of the shredder and in grinding/pelletising and thus to decline in Pyrum Innovations AG's income.

Pyrum Innovations AG endeavours to counteract these influences by adjusting the sales prices to changes in the prices for procuring materials and by agreeing indexation clauses tied to material and energy prices. Should this not be possible in the future as a result of a change in the competitive situation, this could have negative impacts on the net assets, financial position and results of operations of Pyrum Innovations AG.

### *Foreign currency risks*

Pyrum Innovations AG has so far generated sales exclusively in euros. Purchases of construction parts, components and raw materials are also made in foreign currency in exceptional cases. Individual suppliers connected with the listing in Oslo are invoiced in Norwegian kroner. The foreign currency risk, which may have an adverse impact on the net assets, financial position and results of operations of Pyrum Innovations AG, is therefore not significant.

With regard to the listing of the Pyrum Innovations AG shares, Euronext in Oslo (Norway) is the primary market, which means there is a considerable foreign currency risk between the Norwegian kroner and the euro concerning the valuation of the share.

### *Information technology risks*

The Pyrum Innovations AG plant is managed using complex IT systems. 24/7 production relies on the permanent availability of the relevant systems and data. Serious disruptions such as system failures, outside attacks on the networks or the loss or manipulation of data can put production at risk and bring with them high down time and restart costs. This is why the company works constantly, also with the support of external specialists, to optimise the IT environment and IT security. The expenses and resources for the IT security management increased considerably in the period under review.

### *Staff recruitment and selection risks*

Pyrum Innovations AG is particularly dependent on qualified personnel for realising further growth and for implementing the roll-out plan. Should it no longer be possible in the future to attract sufficient numbers of qualified personnel on salaries in line with the market and to retain them in the long term at Pyrum Innovations AG and its affiliated companies, this could result in a failure to achieve Pyrum Innovations AG's growth plans or to achieve them only later than planned.

A shortage of qualified personnel may in the future become a critical factor restricting growth. Pyrum Innovations AG meets this challenge, which is also demographic, by considerably intensifying its activities in personnel marketing and in personnel development. Significant increases in personnel costs and wage and salary levels will also have an impact in this connection.

### *Warranty risks*

Pyrum Innovations AG provides a warranty to the purchasers of a Pyrum pyrolysis plant that the reactors will have a useful life of 10 years. The underlying assumptions and calculations might prove to be incorrect or plant components might contain defects and Pyrum Innovations AG will be exposed in the future to warranty claims and/or claims for damages as a result. This could have adverse impacts on the net assets, financial position and results of operations of Pyrum Innovations AG.

### *Risks relating to receivables*

Full or partial default on receivables from customers or other business partners or considerable delays in payment to a greater extent could result in liquidity constraints and consequently in a limitation of the operating activities of Pyrum Innovations AG or significant impacts on its net assets, financial position and results of operations. Pyrum Innovations AG counters these risks by asking for advance payments, using progress invoicing in the project business and asking customers to furnish guarantees.

### *Subsidy repayment risks*

Pyrum Innovations AG has been and will be granted or promised state investment grants for individual development projects and business measures. The use of funds of this kind is generally assigned for a specific project and tied to appropriate requirements and conditions. Should Pyrum Innovations AG not be able to guarantee or furnish proof of this, this may result in the company having to pay back the relevant investment grants. Pyrum Innovations AG counters this risk by implementing professional project controlling.

### *Risks from insufficient insurance coverage*

Despite having extensive insurance cover, Pyrum Innovations AG cannot guarantee that all damage that may possibly arise can be compensated in full. Should losses be incurred, especially in the area of

product liability or as a result of disruptions to production, but also from other material damage, that are not covered or not sufficiently covered by the insurance, this could have negative impacts on the net assets, financial position and results of operations of Pyrum Innovations AG.

### *Risks arising from financial commitments*

Pyrum Innovations AG has entered into lease and rental obligations and must meet repayment obligations from financing for land, buildings and plant components that may adversely impact the liquidity situation in the future. These obligations have to be settled from the cash flow from operating activities. The commitments arising from rental and lease agreements for technical equipment and machinery, installations and vehicles are significant and represent high fixed costs. These costs cannot be adjusted in the event there is a sharp slowdown in sales and earnings. This could have adverse impacts on the net assets, financial position and results of operations of Pyrum Innovations AG.

### *Risks from breaches of environmental protection obligations*

Pyrum Innovations AG might breach existing environmental legislation or unintentionally pollute the environment during its production processes. This could adversely influence the net assets, financial position and results of operations of Pyrum Innovations AG. These risks are prevented and the statutory regulations are fulfilled by implementing appropriate management systems. In addition, a variety of environmental audits were conducted and successfully passed – with the company scoring good marks – in the period under review.

### *Risks from breaches of intellectual property rights*

Competitors and development partners might copy Pyrum Innovations AG's products and processes or competitors and development partners might unknowingly infringe patents belonging to Pyrum Innovations AG. Moreover, it cannot be ruled out that Pyrum Innovations AG will unknowingly infringe patents of its competitors or development partners, something that can also result in particular from a different understanding of the contents of the intellectual property protected by the patent. Both of these factors could have negative impacts on the net assets, financial position and results of operations of Pyrum Innovations AG.

### *Financing risks*

The implementation of the medium-term strategic planning requires that customer plants (including SPVs) are also sold alongside the construction and operation of own plants. There is a risk that the potential buyers of the plants cannot contribute sufficient capital and, as a result of the new technology and the trend towards rising interest rates, cannot obtain financing for these plants, so that planned projects are postponed or cancelled. In order to address this risk, Pyrum supports its customers in financing negotiations with banks, authorities and other potential (project) investors.

There is also a risk for Pyrum Innovations AG itself that financing for its own plants can be generated only under difficult conditions. This could have negative impacts on the net assets, financial position and results of operations of Pyrum Innovations AG.

## REPORT ON OPPORTUNITIES

Looking back at the 2022 financial year, Pyrum Innovations AG faced a variety of operational challenges. In addition to the construction of the plant expansion at the headquarters in Dillingen/Saar, the expansion of the workforce and the implementation of fundamental structures in all areas as well as the implementation of the management strategy in the company were the focus of attention in order to create the basis for swift and healthy organic growth and to continue to develop our technological advantage.

It is thanks to the great commitment and the outstanding commitment of Pyrum's employees that the structures have been created in the space of just one year that have enabled the company to obtain or pass

- ISO 9001 certification
- ISO 14001 certification
- EcoVadis rating
- Imug rating
- Life cycle assessment
- zwei VDA 6.3 Audits (Continental and Pirelli)
- and disposal company audits with BMW and Mercedes

scoring excellent marks in the process, and to win the Materialica Award together with BASF, Mercedes and the Witte company in October 2022. We have thus succeeded in being accepted as a supplier by three tyre manufacturers and in laying the groundwork for supplying many more customers (after auditing) in the future. Pyrum Innovations AG feels vindicated in its strategy to work together with many different stakeholder groups and not to tie itself down to individual providers or customers. The current demand for products that enable a genuine circular economy shows that Pyrum is on the move in a growth market with a promising future. The demand for Pyrum's consistently reproducible and high-quality products is significantly higher than the company can serve in the next few years with the construction of plants. The primary objective in the 2023 financial year is to resolve the financing issues concerning the construction of new plants in order to increase capacity as quickly as possible.

The material opportunities for Pyrum's positive business and economic performance are outlined below. The list is not exhaustive and the opportunities outlined are not necessarily the only ones available to Pyrum. Conversely, it is also possible that identified opportunities will not materialise.

### *Staff recruitment*

Pyrum Innovations AG is also a popular employer for students, many of whom we have hired directly into a permanent position after graduation. Its sustainable business model also creates additional incentives in today's climate. In regional terms, the relocation or closure of other companies' production sites also presents good opportunities to recruit competent specialists.

### *Raw material prices and security of supply*

The success of the business model depends among other things on the quality of the products and especially the development of oil and carbon black prices. This constitutes a risk for purchasing, but is a major opportunity for Pyrum on the product side, as higher construction costs ought to be more than compensated for by higher selling prices. Scarcity encourages creativity. A shortage of carbon black is already resulting in enquiries from industries that Pyrum had not yet identified as markets for its products. The pigment industry, ink manufacturers, cast iron makers, manufacturers of rubber products, seal manufacturers and packaging manufacturers are all seeking new solutions, as the



traditional channels and supply chains have been lastingly disrupted by the effects of the Covid-19 pandemic and the current war in Ukraine. Therefore, the biggest challenge for Pyrum is now to grow sufficiently to meet the demand and occupy new niches. Thanks to the company's own laboratory, new customer requirements and enquiries can usually be answered without recourse to external experts.

### *Political environment*

In recent years, government regulation has been working towards inducing the necessary ecological realignment and prohibiting the export of waste to distant countries, as this is not a sustainable solution for our waste disposal problems. The unchecked consumption of raw materials without recycling is jeopardising our supply of raw materials in the medium term. Companies have set themselves ambitious climate targets and are now seeking solutions for implementing them in order to survive on the market in the long term. Pyrum sees itself as a solution provider. At present, this is focused on tyres but in the future it will extend this to other waste on the basis of its research and development activities.

### *Competition and current state of the art*

With the large-scale industrial deployment of its own technology in 24/7 operation since May 2020, Pyrum has proved that its technology is ready for the market. So far, it seems to be the only provider on the market that can both replicably deliver high-quality pyrolysis oil and rCB in consistent quality every day and convert the pyrolysis gas into electricity in such a reliable and efficient manner that the pyrolysis process, seen over the entire year, can be energy self-sufficient. Pyrum believes that, technologically, it is 4-5 years ahead of the competition. The end-of-life tyres disposed of with Pyrum can already be reused in new products in an almost entirely circular manner without thermal recycling of the oil.

A very positive view is taken of technological competition, as it raises public awareness, and the market for end-of-life tyres contains enough potential for multiple providers to find a sustainable solution to the end-of-life tyre disposal problem in the long term.

### *Technological opportunities*

Pyrum sees itself as a technological market leader and, together with strong partners, is already research additional applications of the pyrolysis process, with the aim of adapting it to other waste flows for which there are still no answers (such as the recycling of wind turbines). At the same time, Pyrum is meeting the social and political pressure on manufacturers to provide recycling opportunities along with the production of products.

### *Bans on the use of tyre rubber*

On 26 April 2023, the European REACH committee voted in favour of the proposal to limit the use microplastics, which provides an indication that one of today's primary fields of application for the reuse of tyre rubber, the rubber granulate produced from mechanical processing and large amounts of which is used at sports grounds and in the artificial grass sector, no longer has a future. This would mean that the recycling gap of 100,000 tonnes of tyres per year already existing today in the EU alone (forecast for 2025 – 250,000 tonnes) would widen even more significantly than previously assumed. As the consultations on this issue have already been in progress for more than 10 years and the proposed ban aimed at minimising the amount of microplastics in the environment will now be submitted to the EU Commission for a decision, the management of Pyrum Innovations AG assumes that this trend is irreversible and will thus have a positive impact on the future market prospects of Pyrum Innovations AG.

### *Overall assessment of the future development of Pyrum Innovations AG*

Pyrum Innovations AG has proved in continuous operations since May 2020 that the technology in use can set new benchmarks in the recycling of tyres. The interest of the customers in the products, whether directly as in the case of rCB or indirectly in terms of the products manufactured by BASF from our oil, is several times higher than the volumes it has previously been able to satisfy with one plant. The (minimum) target volumes for the purchase of over 100,000 tonnes of pyrolysis oil per year agreed with BASF alone, representing a factor of 100 compared to today's production volumes, plus the targets already published by the tyre industry regarding its separate objectives for a circular economy, show that demand is already sufficiently high today and that Pyrum's future prospects following the successful implementation of the roll-out are very good.

There are currently no risks that pose a threat to the company as a going concern. The business opportunities outweigh the potential risks.

## Supplementary report

A letter of intent was signed with Polyfuels Group AB in January 2023. The objective is to build up to four plants in Norway, Sweden, Finland and Estonia.

The new reactors were installed in the Dillingen extension on 8 February 2023.

Pyrum Innovations AG was paid an investment grant of EUR 1.5 million in February 2023, through transactions recognised in the cash flow statement, in order to create new jobs in Dillingen/Saar.

The approval of the city council in Homburg/Saar to establish Pyrum's next company plant was also issued in February 2023. A reservation agreement for the future property was entered into in May 2023. This agreement includes a letter of intent for the purchase of the site, in which the purchase price and the infrastructure development costs have already been finalised and fixed.

ISO 14001 certification was successfully completed in March 2023. All certificates that have so far been required in order to supply the tyre industry have now been successfully obtained.

After the specifications of the pelletising plant were fulfilled in the first quarter of 2023, the necessary plant approval was issued by Continental, which represents the basis for series supplies to Continental, thus enabling the series supply to be started in May 2023.

In addition, an audit with Pirelli was successfully completed in March 2023, meaning that the basis for future deliveries of rCB has also been laid here.

Pyrum Innovations AG signed a loan agreement for EUR 4 million with BASF Antwerp in May 2023. The loan will be disbursed in four tranches between May and August 2023.

### Pyrum Innovations AG

Dillingen/Saar, 17 May 2023



Pascal Klein  
CEO



Michael Kapf  
Member of the  
Executive Board



Kai Winkelmann  
Member of the Executive Board

# Annual and consolidated financial statements for 2022

Consolidated balance sheet .....	52
Consolidated income statement .....	54
Consolidated cash flow statement .....	55
Consolidated statement of changes in equity .....	56
Balance sheet of Pyrum Innovations AG .....	58
Income statement of Pyrum Innovations AG .....	60

## Combined notes to the financial statements

I. General Disclosures on Pyrum Innovations AG and the Group .....	61
II. Scope of consolidation .....	62
III. Principles of consolidation .....	62
IV. Accounting policies .....	63
V. Balance sheet disclosures .....	65
Consolidated gross statement of changes in non-current assets .....	66
Statement of changes in fixed assets .....	67
VI. Income statement disclosures .....	72
VII. Related Parties .....	74
VIII. Cash flow statement disclosures .....	75
IX. Significant events after the balance sheet date .....	75
X. Other disclosures .....	76

## Consolidated balance sheet as of 31 December 2022

ASSETS (in EUR)	31. Dec. 2022	31. Dec. 2021
<b>A. Non-current assets</b>		
I. Non-current intangible assets		
1. Self-created rights and licences in such rights	78,236.00	98,210.00
2. Acquired rights and licences in such rights	6,394,276.79	7,279,577.27
3. Intangible assets under development	19,734.13	0.00
	<u>6,492,246.92</u>	<u>7,377,787.27</u>
II. Property, plant, and equipment		
1. Land and buildings including buildings on leasehold property	4,009,216.84	1,048,330.25
2. Technical equipment and machinery	3,449,205.32	4,519,783.32
3. Other equipment, operating and office equipment	1,272,559.00	975,019.00
4. Advances paid and assets under construction	20,027,994.92	2,521,472.86
	<u>28,758,976.08</u>	<u>9,064,605.43</u>
III. Non-current financial assets		
Shares in associates	36,921.62	0.00
<b>Total non-current assets</b>	<b>35,288,144.62</b>	<b>16,442,392.70</b>
<b>B. Current assets</b>		
I. Inventories		
1. Raw materials and supplies	23,000.00	23,225.00
2. Work in progress	69,700.00	15,500.00
3. Finished and unfinished goods	241,640.38	18,942.85
4. Advance payments made	54,270.00	0.00
	<u>388,610.38</u>	<u>57,667.85</u>
II. Receivables and other current assets		
1. Trade receivables	146,728.46	137,936.71
2. Other current assets	1,258,986.39	207,905.38
	<u>1,405,714.85</u>	<u>345,842.09</u>
III. Cash at hand and in bank	12,725,508.05	34,446,013.72
<b>Total current assets</b>	<b>14,519,833.28</b>	<b>34,849,523.66</b>
<b>C. Deferred expenses</b>	<b>49,389.85</b>	<b>29,132.31</b>
<b>Total assets</b>	<b><u>49,857,367.75</u></b>	<b><u>51,321,048.67</u></b>

## Consolidated balance sheet as of 31 December 2022

<b>EQUITY AND LIABILITIES</b> (in EUR)	31. Dec. 2022	31. Dec. 2021
<b>A. Equity</b>		
I. Subscribed Capital	3,253,735.00	3,253,735.00
II. Capital Reserves	52,058,141.06	52,058,141.06
III. Accumulated Losses	-23,420,539.29	-15,612,428.62
<b>Total Equity</b>	<b>31,891,336.77</b>	<b>39,699,447.44</b>
<b>B. Provisions and Accrued Liabilities</b>		
<b>Other provisions and accrued liabilities</b>	<b>3,113,897.55</b>	<b>3,481,393.88</b>
<b>C. Liabilities</b>		
1. Liabilities to banks	4,060,778.08	1,569,058.95
2. Advance payments received	100,000.00	0.00
3. Trade payables	2,681,088.24	2,225,840.42
4. Other liabilities	8,010,267.11	4,345,307.98
<b>Total liabilities</b>	<b>14,852,133.43</b>	<b>8,140,207.35</b>
<b>Total equity and liabilities</b>		
	<b>49,857,367.75</b>	<b>51,321,048.67</b>

## Consolidated income statement for the 2022 financial year

	2022 EUR	2021 EUR
1. Revenues	981,952.80	922,212.12
2. Increase/decrease of finished and unfinished goods	276,897.53	-27,787.27
3. Other own work capitalised	<u>17,810,233.72</u>	<u>2,806,685.61</u>
<b>4. Total output</b>	<b>19,069,084.05</b>	<b>3,701,110.46</b>
5. Other operating income	1,318,003.19	1,106,232.21
6. Expenses for materials		
a) Expenses for raw materials, supplies and for purchased goods	16,218,052.50	2,248,431.11
b) Expenses for purchased services	<u>1,434,516.34</u>	<u>335,700.36</u>
	17,652,568.84	2,584,131.47
7. Personnel expenses		
a) Wages and salaries	3,537,503.01	2,941,013.87
b) Social security contributions and expenses for pension provision	<u>646,315.48</u>	<u>517,533.93</u>
	4,183,818.49	3,458,547.80
8. Depreciation, amortisation and write-downs of intangible non-current assets and property, plant, and equipment	2,554,345.91	1,625,712.14
9. Other operating expenses	3,581,309.30	5,285,278.77
10. Income from non-current loans	0.00	6,666.78
11. Other interest and similar income	32,389.06	238.55
12. Interest and similar expenses	211,550.72	202,434.97
13. Cost of equity valuation of associates	<u>13,078.38</u>	<u>0.00</u>
<b>14. Result after taxes</b>	<b>-7,777,195.34</b>	<b>-8,341,857.15</b>
15. Other taxes	30,915.33	9,470.50
<b>16. Net loss for the year</b>	<b>-7,808,110.67</b>	<b>-8,351,327.65</b>
17. Loss carried forward from the previous year	<u>-15,612,428.62</u>	<u>-7,261,100.97</u>
<b>18. Balance sheet loss</b>	<b><u>-23,420,539.29</u></b>	<b><u>-15,612,428.62</u></b>



## Consolidated cash flow statement for the 2022 financial year

	2022 EUR	2021 EUR
Net income/loss for the period	-7,808,111	-8,351,327
Depreciation, amortisation of non-current assets / reversals of write-downs of non-current assets	2,554,345	1,625,712
Increase/decrease in provisions	-200,137	242,108
Other non-cash expenses/income	13,078	0
Increase/decrease in inventories, trade receivables and other assets not related to investing or financing activities	-1,411,070	-118,842
Increase/decrease in trade payables and other liabilities not attributable to investing or financing activities	621,795	338,386
Profit/loss from the disposal of non-current assets	-9,999	-28,827
Interest expenses/income	179,162	195,530
Miscellaneous other income not attributable to cash flow from operating activities	-869,351	2,187,313
<b>Cash flow from operating activities</b>	<b>-6,930,288</b>	<b>-3,909,947</b>
Payments for investments in non-current assets	-19,734	-132,448
Proceeds from disposals of property, plant and equipment	10,000	114,515
Payments for investments in property, plant and equipment	-20,763,358	-3,954,647
Payments for investments in financial assets	-50,000	0
Payments for additions to the scope of consolidation	0	-6,544,700
Interests received	230	238
<b>Cash flow from investing activities</b>	<b>-20,822,862</b>	<b>-10,517,042</b>
Proceeds from equity contributions from shareholders of the parent company	0	39,369,347
Proceeds from short- or long-term (financial) loans	5,800,000	775,000
Payments from the redemption of (financial) loans	-872,153	-757,910
Proceeds from grants/subsidies received	1,736,879	470,752
Payments in connection with expenses for the private placement and the capital increase, as for the second listing	-420,530	-948,822
Interests paid	-211,551	-182,006
<b>Cash flow from financing activities</b>	<b>6,032,645</b>	<b>38,726,361</b>
<b>Net change in cash funds</b>	<b>-21,720,505</b>	<b>24,299,372</b>
Increase in cash funds due to first-time consolidation	0	408,069
Cash funds at beginning of period	34,239,010	9,531,569
<b>Cash funds at end of period</b>	<b>12,518,505</b>	<b>34,239,010</b>

## Consolidated statement of changes in equity

### Consolidated statement of changes in equity for the 2022 financial year

	Subscribed capital	Capital reserve		Total	Total reserves	Consolidated loss carried forward	Consolidated net loss	Consolidated balance sheet loss	Total group equity
		according to § 272 Para. 2 No. 1 - 3 HGB	according to § 272 Para. 2 No. 4 HGB						
	€	€	€	€	€	€	€	€	€
<b>As of 1 January 2021</b>	<b>2,570,235.00</b>	<b>3,331,098.18</b>	<b>8,242,976.00</b>	<b>11,574,074.18</b>	<b>11,574,074.18</b>	<b>-3,686,083.67</b>	<b>-3,575,017.30</b>	<b>-7,261,100.97</b>	<b>6,883,208.21</b>
Capital increase / reduction	683,500.00	40,484,066.88		40,484,066.88	40,484,066.88				41,167,566.88
Allocation to/withdrawal from reserves						-3,575,017.30	3,575,017.30		0.00
Net loss for the year							-8,351,327.65	-8,351,327.65	-8,351,327.65
<b>As of 1 December 2021</b>	<b>3,253,735.00</b>	<b>43,815,165.06</b>	<b>8,242,976.00</b>	<b>52,058,141.06</b>	<b>52,058,141.06</b>	<b>-7,261,100.97</b>	<b>-8,351,327.65</b>	<b>-15,612,428.62</b>	<b>39,699,447.44</b>
Allocation to/withdrawal from reserves						-8,351,327.65	8,351,327.65		0.00
Net loss for the year							-7,808,110.67	-7,808,110.67	-7,808,110.67
<b>As of 31 December 2022</b>	<b><u>3,253,735.00</u></b>	<b><u>43,815,165.06</u></b>	<b><u>8,242,976.00</u></b>	<b><u>52,058,141.06</u></b>	<b><u>52,058,141.06</u></b>	<b><u>-15,612,428.62</u></b>	<b><u>-7,808,110.67</u></b>	<b><u>-23,420,539.29</u></b>	<b><u>31,891,336.77</u></b>

## Consolidated statement of changes in equity

## Balance sheet as of 31 December 2022

<b>ASSETS</b> (in EUR)	31. Dec. 2022	31. Dec. 2021
<b>A. Non-current assets</b>		
I. Non-current intangible assets		
1. Self-created rights and licences in such rights	78,236.00	98,210.00
2. Acquired rights and licences in such rights	23,465.00	38,653.00
3. Intangible assets under development	19,734.13	0.00
	<u>121,435.13</u>	<u>136,863.00</u>
II. Property, plant, and equipment		
1. Land and buildings including buildings on leasehold property	4,009,216.84	1,048,330.25
2. Technical equipment and machinery	3,400,538.00	4,447,792.00
3. Other equipment, operating and office equipment	1,272,559.00	975,019.00
4. Advances paid and assets under construction	20,027,994.92	2,521,472.86
	<u>28,710,308.76</u>	<u>8,992,614.11</u>
III. Non-current financial assets		
1. Shares in affiliated companies	6,544,700.00	6,544,700.00
2. Loans to affiliated companies	314,345.40	305,189.72
3. Shares in associates	50,000.00	0.00
	<u>6,909,045.40</u>	<u>6,849,889.72</u>
<b>Total non-current assets</b>	<b>35,740,789.29</b>	<b>15,979,366.83</b>
<b>B. Current assets</b>		
I. Inventories		
1. Raw materials, and supplies	23,000.00	23,225.00
2. Work in progress	69,700.00	15,500.00
3. Finished and unfinished goods	241,640.38	18,942.85
4. Advance payments made	54,270.00	0.00
	<u>388,610.38</u>	<u>57,667.85</u>
II. Receivables and other current assets		
1. Trade receivables	146,728.46	134,886.71
2. Other current assets	1,261,819.21	205,880.81
	<u>1,408,547.67</u>	<u>340,767.52</u>
III. Cash at hand and in bank	12,220,032.78	34,035,913.15
<b>Total current assets</b>	<b>14,017,190.83</b>	<b>34,434,348.52</b>
<b>C. Deferred expenses</b>	<b>49,389.85</b>	<b>29,132.31</b>
<b>Total assets</b>	<b>49,807,369.97</b>	<b>50,442,847.66</b>

## Balance sheet as of 31 December 2022

[illegible]

## Income statement for the 2022 financial year

	2022 EUR	2021 EUR
1. Revenues	981,802.80	921,462.12
2. Increase/decrease of finished and unfinished goods	276,897.53	-27,787.27
3. Other own work capitalised	<u>17,810,233.72</u>	<u>2,806,685.61</u>
<b>4. Total output</b>	<b>19,068,934.05</b>	<b>3,700,360.46</b>
5. Other operating income	1,318,003.19	1,106,232.21
6. Expenses for materials		
a) Expenses for raw materials and supplies and for purchased goods	16,218,052.50	2,248,431.11
b) Expenses for purchased services	<u>1,434,516.34</u>	<u>335,700.36</u>
	17,652,568.84	2,584,131.47
7. Personnel expenses		
a) Wages and salaries	3,537,503.01	2,941,013.87
b) Social security contributions and expenses for pension provision	<u>646,315.48</u>	<u>517,533.93</u>
	4,183,818.49	3,458,547.80
8. Depreciation, amortisation and write-downs of intangible non-current assets and property, plant, and equipment	1,660,909.43	1,402,094.05
9. Other operating expenses	3,521,755.01	5,263,182.48
10. Income from non-current loans	9,155.68	8,889.04
11. Other interest and similar income	32,389.06	238.55
12. Interest and similar expenses	<u>204,260.19</u>	<u>198,785.81</u>
<b>13. Result after taxes</b>	<b>-6,794,829.98</b>	<b>-8,091,021.35</b>
14. Other taxes	7,095.33	2,628.00
<b>15. Net loss for the year</b>	<b>-6,801,925.31</b>	<b>-8,093,649.35</b>
16. Loss carried forward from the previous year	<u>-15,354,750.32</u>	<u>-7,261,100.97</u>
<b>17. Balance sheet loss</b>	<b>-22,156,675.63</b>	<b>-15,354,750.32</b>

## Combined Notes to the Financial Statements of the Group and Pyrum Innovations AG for the Financial Year 2022

### I. General disclosures on Pyrum Innovations AG and the Group

The parent company, Pyrum Innovations AG, Dillingen/Saar, was founded as a limited liability company under German law (Gesellschaft mit beschränkter Haftung) on 10 September 2008. It was transformed into a stock corporation (Aktiengesellschaft) by way of resolution of 18 August 2017.

It is entered in the commercial register of the Saarbrücken Local Court under HR B 104458.

Since 30 September 2021, Pyrum Innovations AG has been listed in the Euronext Growth market segment of the Oslo stock exchange in Norway. Since 30 March 2022, it has had a secondary listing in the Scale market segment of Deutsche Börse AG at the Frankfurt stock exchange. Neither segment is an organised market as referred to by section 11(2) of the Wertpapierhandelsgesetz (WpHG – German Securities Trading Act). Pyrum Innovations AG is therefore not a listed company as referred to by section 264d of the Handelsgesetzbuch (HGB – German Commercial Code).

The **annual financial statements** have been prepared in accordance with the accounting regulations of section 242 ff. HGB for corporations in compliance with the special regulations for stock corporations. The balance sheet and the income statement have been prepared in accordance with the regulations for large corporations. The income statement has been prepared in line with the total cost (nature of expense) method. Some practical expedients for medium-sized corporations have been used in preparing the combined notes to the financial statements.

The **consolidated financial statements** of Pyrum Innovations AG and its subsidiary have been prepared in accordance with the regulations of sections 290 ff. HGB in compliance with the standards of the German Accounting Standards Committee.

The presentation of the consolidated balance sheet and the consolidated income statement is prepared in accordance with the regulations for large corporations. The consolidated income statement has been prepared in line with the total cost (nature of expense) method. The consolidated cash flow statement has been prepared in accordance with German Accounting Standard DRS 21. The consolidated statement of changes in equity has been prepared in accordance with German Accounting Standard DRS 22. German Accounting Standard DRS 18 on deferred taxes has been applied with the early adoption of Amending German Accounting Standard DRÄS 11.

The annual financial statements and the consolidated financial statements are presented in euros. The financial year of Pyrum Innovations AG and of the Group is the calendar year. The reporting date of the consolidated financial statements is 31 December 2022, which is also the reporting date of all companies included in the consolidated financial statements.

The disclosures in these notes relate to the consolidated financial statements. It is indicated separately if these disclosures are not the same for the annual financial statements of the parent company.



### II. Scope of consolidation

As the parent company, Pyrum Innovations AG prepares the consolidated financial statements for the largest and, at the same time, the smallest group of entities included in the statements.

#### Fully consolidated companies

The subsidiary Pyrum Innovations International S.A., Schengen, Luxembourg, is included in the consolidated financial statements. It has been a subsidiary of Pyrum Innovations AG since 7 October 2021 (date of first-time consolidation).

#### Associates

REVALIT GmbH, in which Pyrum Innovations AG holds a share of 25% of the capital and voting rights, was founded on 10 June 2022. The company's purpose is to build and operate a pyrolysis plant.

### III. Principles of consolidation

The assets, liabilities, prepaid expenses, deferred income, income and expenses of the individual companies included in the consolidated financial statements are combined in the consolidated financial statements.

First-time consolidation is performed in accordance with the purchase method. The assets and liabilities are recognised at fair value as at the date when the company became a subsidiary; however, provisions and deferred taxes are measured in accordance with the applicable German accounting policies. Any excess of assets from first-time consolidation is recognised as goodwill, while a negative difference is reported as a difference arising from capital consolidation after equity. This procedure also applies to asset deals and contributions.

Intercompany balances are consolidated by the elimination of receivables against the corresponding liabilities between the companies included in the consolidated financial statements.

The consolidation of income and expenses is achieved by offsetting intragroup income against the corresponding expenses. Intercompany profits and losses from transactions between consolidated companies are eliminated.

In line with section 306 HGB, deferred taxes from differences between the carrying amounts of assets and liabilities in the consolidated balance sheet and their tax carrying amounts that are expected to reverse in future are recognised accordingly as deferred tax assets and liabilities in the consolidated balance sheet.

Equity investments not controlled but significantly influenced by Pyrum Innovations AG or another Group company are included in the consolidated financial statements as shares in associates accounted for using the equity method in accordance with sections 311 ff. HGB. The equity investment is initially carried at acquisition cost under financial assets. Any difference between the acquisition cost and Pyrum Innovations AG's share in the balance sheet equity of the associate is allocated to hidden reserves and liabilities and carried forward; any remaining difference is carried forward according to the principles of goodwill. Pyrum Innovations AG's share in the profit or loss of the associate is recognised in the consolidated income statement together with the expenses and income from the subsequent measurement of the difference.

### IV. Accounting policies

The accounting policies are applied uniformly and consistently in the annual and consolidated financial statements.

Purchased intangible assets are carried at acquisition cost less amortisation if applicable.

Internally generated intangible assets are recognised using the option provided in section 248(2) HGB and measured at production cost. They are amortised over their useful life from the time of their completion. The capitalisation phase commences as soon as the development phase for an asset that will be individually usable after completion has begun, there is a high probability of completion and the development costs can be reliably allocated.

Goodwill from the acquisition of companies and first-time consolidation is capitalised and written down over the expected useful life.

Tangible fixed assets are reported at acquisition or production cost less depreciation if applicable.

Subsequent acquisition or production costs are capitalised if the scope, function or performance of technical equipment in operation is significantly expanded. Depreciation and amortisation are recognised on a straight-line basis over the remaining useful life.

The production cost of tangible and intangible assets includes direct costs of materials, direct labour costs and overheads, depreciation/amortisation of the fixed assets used and appropriate amounts of administrative overheads. Borrowing costs are not included in the cost of production.

Depreciation and amortisation are recognised on a straight-line basis over the expected useful lives of the assets. The following useful lives are assumed:

	Years
Buildings and other structures	14-35
Patents, licences, expertise	10.6
Technical equipment and machinery	5-10
Equipment and facilities	4-11
Internally generated intangible assets	5
Computer software	5
Computer hardware	3-5

Low-value assets of up to EUR 800.00 are written down in full in the year of their acquisition.

Financial assets are capitalised at acquisition cost including incidental purchase costs. They are written down to the lower fair value in the event of permanent impairment. Associates are accounted for at equity in the consolidated financial statements in deviation from this.

Raw materials, consumables and supplies are carried at acquisition cost. Work in progress and finished goods are recognised at their production cost in accordance with the upper limit value under commercial law. Inventories are written down to their fair value at the balance sheet date.

Receivables and other assets are recognised at their nominal value and measured taking all discernible risks into account.

Other provisions are recognised for all uncertain liabilities and, if necessary, expected losses from onerous contracts. All discernible risks are considered. Provisions are measured at the amount required to settle the underlying obligation in line with prudent business judgement. The costs at the expected settlement date of the obligation are taken into account.

Provisions expected to be settled more than one year after the balance sheet date are discounted. The remaining terms estimated for this are based on management forecasts of expected future utilisation, including in particular the medium-term budget planning for plant engineering. The

maturity-based average market rates of the past seven years calculated by the Deutsche Bundesbank in accordance with the Rückstellungsabzinsungsverordnung (German Regulation on the Discounting of Provisions) are used for discounting. The income from discounting and interest effects from changes in interest rate and amended estimates or terms are recognised net as interest income or interest expenses.

Deferred taxes are recognised and measured in accordance with section 274 HGB. Deferred tax assets and liabilities relating to the same tax jurisdiction are offset – including deferred taxes from consolidation adjustments within the Group; exercising the option provided by section 274(1) sentence 2 HGB, any excess assets from first-time consolidation are not recognised. Deferred tax assets and liabilities are reported net. Deferred tax assets from tax loss carryforwards are recognised if they are expected to be utilised. Future taxable income expected to arise in the same tax jurisdiction is included in the measurement here only if it is expected that there will be loss carryforwards against which they can be utilised in the next five years. They are recognised at least in the amount of any net deferred tax liabilities relating to the same tax jurisdiction.

Liabilities are carried at their settlement amount.

Transactions in foreign currency are translated into euro using the exchange rate on the day of the transaction. In the balance sheet, foreign currency receivables and liabilities with a remaining term of up to one year are translated into euro at the average spot exchange rate on the reporting date. Foreign currency receivables and liabilities with a remaining term of more than one year are translated using the closing rate or the lower/higher rate on the transaction date.

The functional currency of both Group companies is the euro; currency translation of the single-entity financial statements of the Group companies is not necessary.

Sales are recognised on delivery or completion of the service.

Income from government grants is recognised when commitments are made or grant agreements signed and to the extent that the activities funded are performed. Income from grants for assets for which capitalisation is required is recognised in full as income as at the date that the asset is completed or commences operations; it is not recognised pro rata temporis in line with the useful life of the asset.

The income is reported as other operating income; claims to realised subsidies are reported as other assets; funds already received but not yet realised are recognised as other liabilities.

### **Accounting and classification policies that deviate from the previous year**

The accounting and classification policies have not changed and are applied in the same way as in the previous year.

## V. Balance sheet disclosures

### 1. Fixed assets

The development of the individual items of fixed assets is shown in the statement of changes in fixed assets in the consolidated and annual financial statements with disclosures on depreciation and amortisation for the financial year.

The purchased industrial and similar rights and assets capitalised in conjunction with first-time consolidation in the 2021 consolidated financial statements comprise the two patents owned by Pyrum Innovations International S.A. for the recycling of end-of-life tyres and the expertise acquired in applying this process by the end of 2017 under a research services agreement between Pyrum Innovations International S.A. and Pyrum Innovations AG. These are written down on a straight-line basis over the remaining period of patent protection for the two patents.

The internally generated intangible assets capitalised during the financial year under intangible assets under development relate to the development of a “digital twin”. This is a virtual environment for the pyrolysis plant that has been developed using simulation software. It will in the future allow employees to be trained, unexpected incidents to be simulated and the plant to be tested as the pyrolysis technology continues to be developed without having physically to conduct changes beforehand.

Payments on account and assets under construction of EUR 20,027,994.92 (previous year: EUR 2,521,472.86) essentially break down as follows:

		<u>Financial year</u> EUR	<u>Previous year</u> EUR
Pyrolysis line 2 and 3	Start of project 2020	18,687,532.09	1,724,128.74
Pelletiser	Start of project 2020	1,289,212.21	506,039.02

The start-up of the pelletising plant took considerably more time than was expected when it was delivered by the manufacturer in February 2022. Series production was commenced at the end of the first quarter of 2023. Series supply for the automotive industry began in May 2023. The plant will continue to be optimised with the primary goal of further increasing the material throughput.

The project to extend the plant at the company’s headquarters in Dillingen with the construction of pyrolysis lines 2 and 3 was launched in 2020 after continuous operation of the first industrial pyrolysis tower was commenced. Construction on the plant began in September 2021. As per 31 December 2022 the balance also includes the costs already incurred for the second shredder plant and for other peripheral facilities.

The 100% interest in Pyrum Innovations International S.A. is capitalised in the annual financial statements of Pyrum Innovations AG. Equity amounts to EUR 4,078,508.89 as at 31 December 2022. The net loss for the year of the subsidiary amounts to EUR 685,849.63 for 2022. This essentially results from amortisation on patents and expertise (EUR 569,275.48).

Pyrum Innovations International S.A. holds an interest of 10% in Pyrum Innovations SAS, Flévy, France. The company has neither assets nor business activities. The interest is not shown in the consolidated balance sheet.

**Disclosures on the balance sheet of Pyrum Innovations AG and on the Group  
Consolidated gross statement of changes in non-current assets**

**Consolidated Gross Statement of Changes in Non-current Assets as of 31 December 2022**

	Acquisition and production costs				Cumulative depreciation and amortisation				Book value	
	1 January 2022	Additions	Disposals	Reclassifications	31 December 2022	1 January 2022	Additions	Disposals	31 December 2022	31 December 2021
	EUR	EUR	EUR	EUR	EUR	EUR	EUR	EUR	EUR	EUR
<b>I. Non-current intangible assets</b>										
1. Self-created rights and licences in such rights	99,875.19	0.00	0.00	0.00	99,875.19	1,665.19	19,974.00	0.00	21,639.19	78,236.00
2. Acquired rights and licences in such rights	7,522,152.76	0.00	0.00	0.00	7,522,152.76	242,575.49	885,300.48	0.00	1,127,875.97	6,394,276.79
3. Intangible assets under development	0.00	19,734.13	0.00	0.00	19,734.13	0.00	0.00	0.00	0.00	19,734.13
	<b>7,622,027.95</b>	<b>19,734.13</b>	<b>0.00</b>	<b>0.00</b>	<b>7,641,762.08</b>	<b>244,240.68</b>	<b>905,274.48</b>	<b>0.00</b>	<b>1,149,515.16</b>	<b>6,492,246.92</b>
										<b>7,377,787.27</b>
<b>II. Property, plant, and equipment</b>										
1. Land and buildings including buildings on leasehold property	1,081,355.09	2,953,881.55	0.00	77,052.05	4,112,288.69	33,024.84	70,047.01	0.00	103,071.85	4,009,216.84
2. Technical equipment and machinery	9,650,743.16	60,153.24	0.00	61,095.40	9,771,991.80	5,130,959.84	1,191,826.64	0.00	6,322,786.48	3,449,205.32
3. Other equipment, operating and office	1,402,943.97	554,264.05	19,900.00	130,474.73	2,067,782.75	427,924.97	387,197.78	19,899.00	795,223.75	1,272,559.00
4. Advances paid and assets under construction	2,521,472.86	17,775,144.24	0.00	-268,622.18	20,027,994.92	0.00	0.00	0.00	0.00	20,027,994.92
	<b>14,656,515.08</b>	<b>21,343,443.08</b>	<b>19,900.00</b>	<b>0.00</b>	<b>35,980,058.16</b>	<b>5,591,909.65</b>	<b>1,649,071.43</b>	<b>19,899.00</b>	<b>7,221,082.08</b>	<b>28,758,976.08</b>
										<b>9,064,605.43</b>
<b>III. Non-current financial assets</b>										
Shares in associates	0.00	50,000.00	0.00	0.00	50,000.00	0.00	13,078.38	0.00	13,078.38	36,921.62
	<b>22,278,543.03</b>	<b>21,413,177.21</b>	<b>19,900.00</b>	<b>0.00</b>	<b>43,671,820.24</b>	<b>5,836,150.33</b>	<b>2,567,424.29</b>	<b>19,899.00</b>	<b>8,383,675.62</b>	<b>35,288,144.62</b>
										<b>16,442,392.70</b>

**Disclosures on the balance sheet of Pyrum Innovations AG and on the Group  
Statement of changes in fixed assets Pyrum Innovations AG**

**Gross Statement of Changes in Non-current Assets as of 31 December 2022**

	1 January 2022 EUR	Acquisition and production costs Additions EUR	Disposals EUR	Reclassification ns EUR	30 June 2022 EUR	1 January 2022 EUR	Cumulative depreciation and amortisation Additions EUR	Disposals EUR	30 June 2022 EUR	Book value 30 June 2022 EUR	31 December 2021 EUR
<b>I. Non-current intangible assets</b>											
1. Self-created rights and licences in such rights	99,875.19	0.00	0.00	0.00	99,875.19	1,665.19	19,974.00	0.00	21,639.19	78,236.00	98,210.00
2. Acquired rights and licences in such rights	63,441.40	0.00	0.00	0.00	63,441.40	24,788.40	15,188.00	0.00	39,976.40	23,465.00	38,653.00
3. Intangible assets under development	0.00	19,734.13	0.00	0.00	19,734.13	0.00	0.00	0.00	0.00	19,734.13	0.00
	<b>163,316.59</b>	<b>19,734.13</b>	<b>0.00</b>	<b>0.00</b>	<b>183,050.72</b>	<b>26,453.59</b>	<b>35,162.00</b>	<b>0.00</b>	<b>61,615.59</b>	<b>121,435.13</b>	<b>136,863.00</b>
<b>II. Property, plant, and equipment</b>											
1. Land and buildings including buildings on leasehold property	1,081,355.09	2,953,881.55	0.00	77,052.05	4,112,288.69	33,024.84	70,047.01	0.00	103,071.85	4,009,216.84	1,048,330.25
2. Technical equipment and machinery	9,572,920.84	60,153.24	0.00	61,095.40	9,694,169.48	5,125,128.84	1,168,502.64	0.00	6,293,631.48	3,400,538.00	4,447,792.00
3. Other equipment, operating and office	1,402,943.97	554,264.05	19,900.00	130,474.73	2,067,782.75	427,924.97	387,197.78	19,899.00	795,223.75	1,272,559.00	975,019.00
4. Advances paid and assets under construction	2,521,472.86	17,775,144.24	0.00	-268,622.18	20,027,994.92	0.00	0.00	0.00	0.00	20,027,994.92	2,521,472.86
	<b>14,578,692.76</b>	<b>21,343,443.08</b>	<b>19,900.00</b>	<b>0.00</b>	<b>35,902,235.84</b>	<b>5,586,078.65</b>	<b>1,625,747.43</b>	<b>19,899.00</b>	<b>7,191,927.08</b>	<b>28,710,308.76</b>	<b>8,992,614.11</b>
<b>III. Non-current financial assets</b>											
1. Shares in affiliated companies	6,544,700.00	0.00	0.00	0.00	6,544,700.00	0.00	0.00	0.00	0.00	6,544,700.00	6,544,700.00
2. Loans to affiliated companies	305,189.72	9,155.68	0.00	0.00	314,345.40	0.00	0.00	0.00	0.00	314,345.40	305,189.72
3. Other loans	0.00	50,000.00	0.00	0.00	50,000.00	0.00	0.00	0.00	0.00	50,000.00	0.00
	<b>6,849,889.72</b>	<b>59,155.68</b>	<b>0.00</b>	<b>0.00</b>	<b>6,909,045.40</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>6,909,045.40</b>	<b>6,849,889.72</b>
	<b>21,591,899.07</b>	<b>21,422,332.89</b>	<b>19,900.00</b>	<b>0.00</b>	<b>42,994,331.96</b>	<b>5,612,532.24</b>	<b>1,660,909.43</b>	<b>19,899.00</b>	<b>7,253,542.67</b>	<b>35,740,789.29</b>	<b>15,979,366.83</b>

**2. Current assets, prepaid expenses**

Inventories primarily comprise intermediate and finished products from the operation of the plant in Dillingen and customer orders in progress. The intermediate products of the recycling process from the individual processing stages are generally ready for sale. Further processing into higher-quality end products is envisaged for the major share, however.

In these financial statements, the production costs of the intermediate and finished products from the tyre recycling plant in Dillingen were remeasured in light of the knowledge obtained from the continuous plant operation since May 2020. The new, higher carrying amounts primarily affected the main products pyrolysis coke and pyrolysis oil; in the case of pyrolysis coke, they were only applied to the stock produced since the successful conclusion of ISCC+ certification in April 2022.

There are no trade receivables with a remaining term of more than one year. No write-downs have been necessary.

EUR 6,882.26 (previous year: EUR 11,442.46) of other assets have a remaining term of more than one year.

**3. Equity**

The development of consolidated equity is shown in the consolidated statement of changes in equity.

**4. Share capital, authorised capital**

As at 31 December 2022, the share capital of Pyrum Innovations AG consists of 3,253,735 bearer shares in total, each with a nominal amount of EUR 1.00.

By way of resolution of the Annual General Meeting on 28 April 2021, the Executive Board was authorised, with the approval of the Supervisory Board, to increase the share capital up to a total amount of not more than EUR 771,070.00 in return for cash or non-cash contributions, once or in tranches, by the end of 27 April 2026. Shareholders' pre-emption rights can be disapplied under certain conditions.

Following the successful private placement in connection with the listing on Euronext Growth in Oslo, Norway, on 30 September 2021, the share capital was increased by EUR 683,500.00 by issuing 683,500 new shares in return for cash contributions.

As at 31 December 2022, the authorised capital still amounts to EUR 87,570.00, equivalent to 87,570 shares.

**5. Capital reserves**

The capital reserves are still held in full by the parent company.

The capital reserves in accordance with section 272(2) no. 1 HGB amount to EUR 43,815,165.06 as at 31 December 2022 and are unchanged from the previous year.

The capital reserves in accordance with section 272(2) no. 4 HGB amount to EUR 8,242,976.00 as at 31 December 2022 and are unchanged from the previous year.

**6. Contingent capital, convertible loan**

By way of resolution of the Annual General Meeting on 9 September 2020, the Executive Board was authorised to issue convertible bonds of EUR 6.6 million with a coupon of 3% by 31 December 2024. Shareholders' direct pre-emption rights were disapplied. BASF Antwerpen NV is permitted to subscribe to the convertible bond.



The Annual General Meeting also adopted a resolution on a contingent increase of the share capital of Pyrum Innovations AG of EUR 199,576.00 (Contingent Capital 2020/I) on 9 September 2020. The contingent capital increase will only be carried out to the extent that the holder of the convertible bonds is permitted to exercise and actually exercises its conversion right.

On 9 September 2020, the Executive Board of Pyrum Innovations AG, with the approval of the Supervisory Board and Pyrum Innovations International S.A. as the joint and several debtor, entered into a convertible loan agreement of EUR 7.0 million with BASF Antwerpen NV. EUR 6.6 million of the convertible loan agreement relates to Pyrum AG and EUR 0.4 million to Pyrum Innovations International S.A. The loan bears interest at 3% p.a. The loan will be paid out in tranches on the achievement of certain milestones. The term of each tranche is 10 years. Repayment starts at the beginning of the third year after the loan is extended. Ordinary termination is not permitted. The lender is authorised to terminate the loan for good cause. The lender's option to convert the loan into shares in accordance with the above conversion ratio applies only in the event of termination for good cause. The nominal amount for the shares arising on conversion is to be settled in cash. The conversion agreement stipulates dilution protection. The loan liabilities have been subordinated by a corresponding clause.

As the conversion right associated with the loan can only be exercised on termination for good cause and the other loan terms are deemed to be in line with market conditions, this conversion right is not assigned a distinct economic value that would have to be transferred to the capital reserves in accordance with section 272(2) no. 3 HGB.

An additional tranche of the convertible loan amounting to EUR 3.0 million was extended in the fourth quarter of 2022 on the basis of the agreed milestone plan. A total of EUR 5.0 million has thus been extended as at 31 December 2022; EUR 4.7 million of the convertible loan relates to the parent company. The loan is reported under other liabilities.

### 7. Restriction on distribution in accordance with section 268(8) HGB

The total amount subject to a restriction on distribution in accordance with section 268(8) HGB is EUR 97,970.13 and relates to the capitalisation of internally generated intangible fixed assets.

### 8. Provisions

Other provisions break down as follows:

	31 Dec. 2022 EUR	31 Dec. 2021 EUR
Obligations from cooperation agreements	1,624,957.08	1,859,116.94
Inventor remuneration (Pyrum S.A.)	987,912.47	985,076.94
Provisions for personnel	239,600.00	170,200.00
Preparation of financial statements, audits, legal and consulting expenses	183,200.00	328,500.00
Outstanding invoices, other	78,228.00	138,500.00
	<u>3,113,897.55</u>	<u>3,481,393.88</u>

Except for a portion of the provisions for the financial statements and audit costs (unchanged from the previous year EUR 8,750.00) and the provision for inventor remuneration, all provisions relate to Pyrum Innovations AG.

Long-term obligations from cooperation agreements result from the construction phase of the first plant in Dillingen. Multiple cooperation partners have deferred claims to remuneration until the completion of the subsequent plants. In conjunction with the construction of pyrolysis lines 2 and 3 in Dillingen, claims were made on some of these obligations when orders were placed for new plant components in the 2022 financial year.

## Disclosures on the balance sheet of Pyrum Innovations AG and on the Group

There is an agreement with the inventor of the tyre pyrolysis process to the effect that the inventor will receive remuneration of EUR 1.0 million based on the profits of Pyrum Innovation International S.A. The obligation has been recognised in the consolidated financial statements at discounted presented value based on when this is likely to occur.

A legal dispute with a previous consulting firm was ended by a court settlement in November 2022; the additional expense incurred as a result of this amounts to EUR 14 thousand in 2022. The contingent liability connected with the legal dispute is no longer in place.

### 9. Liabilities

The Group's liabilities break down as follows:

	Remaining term of less than one year		Remaining term of more than one year	
	31 Dec. 2022	31 Dec. 2021	31 Dec. 2022	31 Dec. 2021
	EUR	EUR	EUR	EUR
Liabilities				
to banks	461,604.35	202,216.33	3,599,173.73	1,366,842.62
Payments received on account of orders	100,000.00	0.00	0.00	0.00
Trade payables	2,075,263.86	1,138,203.44	605,824.38	1,087,636.98
of which hire-purchase liabilities	481,812.60	468,319.07	605,824.38	1,087,636.98
Other	1,892,590.96	836,982.12	6,117,676.15	3,508,325.86
of which convertible loan	294,326.90	3,750.00	4,705,673.10	1,996,250.00
of which other loans	117,447.80	127,030.41	1,426,103.87	1,512,075.86
of which from government grants				
	1,166,106.94	583,908.83	0.00	0.00
of which taxes	68,024.70	41,916.73	0.00	0.00
of which social security	21,570.98	7,268.19	0.00	0.00
<b>Total</b>	<b>4,529,459.17</b>	<b>2,177,401.89</b>	<b>10,322,674.26</b>	<b>5,962,805.46</b>

Group liabilities with a remaining term of more than five years amount to:

	Remaining term more than five years	
	31 Dec. 2022	31 Dec. 2021
	EUR	EUR
Liabilities		
to banks	2,147,718.55	387,953.34
Other	2,628,505.30	1,417,500.09
of which convertible loan	2,628,505.30	1,417,500.09
<b>Total</b>	<b>4,776,223.85</b>	<b>1,805,453.43</b>

The liabilities of the parent company break down as follows:

	Remaining term of less than one year		Remaining term of more than one year	
	31 Dec. 2022	31 Dec. 2021	31 Dec. 2022	31 Dec. 2021
	EUR	EUR	EUR	EUR
Liabilities				
to banks	461,604.35	202,216.33	3,599,173.73	1,366,842.62
payments received on account of orders	100,000.00	0.00	0.00	0.00
Trade payables	2,066,261.52	1,121,328.73	605,824.38	1,087,636.98
of which hire-purchase liabilities	481,812.60	468,319.07	605,824.38	1,087,636.98
Other	1,866,734.73	822,804.46	5,835,335.75	3,392,075.86
of which convertible loan	276,667.30	0.00	4,423,332.70	1,880,000.00
of which other loans	117,447.80	127,030.41	1,426,103.87	1,512,075.86
of which from government grants				
	1,166,106.94	583,908.83	0.00	0.00
of which taxes	63,158.16	34,819.16	0.00	0.00
thereof social security	21,570.98	7,268.19	0.00	0.00
<b>Total</b>	<b>4,494,600.60</b>	<b>2,146,349.52</b>	<b>10,040,333.86</b>	<b>5,846,555.46</b>

## Disclosures on the balance sheet of Pyrum Innovations AG and on the Group

The share of Pyrum Innovations AG's liabilities with a remaining term of more than five years amounts to:

	Remaining term more than five years	
	31 Dec. 2022	31 Dec. 2021
	EUR	EUR
Liabilities to banks	2,147,718.55	387,953.34
Other	2,470,794.74	1,351,250.09
of which convertible loan	2,470,794.74	1,351,250.09
<b>Total</b>	<b>4,618,513.29</b>	<b>1,739,203.43</b>

Liabilities to banks of EUR 3,400,106.06 are secured by mortgages on fixed assets. Liabilities of EUR 98,982.55 are secured by cash; they relate exclusively to the parent company.

Hire-purchase liabilities of EUR 1,087,636.98 are secured by retention of title or the assignment of fixed assets as collateral.

A manufacturer loan of EUR 287,907.69 (previous year: EUR 414,938.06) reported under other liabilities is secured the assignment of the asset as collateral.

The other loans reported in other liabilities of EUR 1,255,643.98 (previous year: EUR 1,224,168.21) have been granted by shareholders of the company. They are unsecured, have terms of up to four years and interest rates of between 2.5 and 6.0%.

### 10. Off-balance sheet financial commitments

There are other financial commitments in addition to the liabilities shown in the balance sheet.

Lease obligations:	kEUR
Due 2023	159
Due 2024	115
Due 2025	63
Later	<u>29</u>
	366

The purchase commitment from purchase agreements for plant components amounts to EUR 10,011 thousand including EUR 4,000 thousand with a long-term maturity.

Contingent liabilities in connection with the cooperation agreements amount to EUR 341 thousand. The Executive Board of Pyrum Innovations AG considers it unlikely that claims will be made on these contingent liabilities as it is currently expected that it will be possible to use all the related components in other systems.

In addition to the above financial commitments in the consolidated financial statements, Pyrum Innovations AG has joint and several liability for the loan liabilities of its subsidiaries under the convertible bond agreement jointly entered into with BASF Antwerpen NV. The liability increased from the previous year by EUR 180 thousand to EUR 300 thousand (previous year: EUR 120 thousand) upon the disbursement of the second tranche of the convertible loan of BASF Antwerpen NV.

Furthermore, under this agreement, in the event of the conversion of the loan relating to the subsidiary after termination by the lender for good cause, Pyrum Innovations AG has an obligation to admit the lender as a minority shareholder with an interest of up to 7.4%.

The Executive Board of Pyrum Innovations AG considers it unlikely that a claim will be made on this contingent liability as its subsidiary has sufficient financial resources to fulfil its obligations under the agreement as they become due.

## VI. Income statement disclosures

Sales break down as follows:

	<u>Financial year</u>	<u>Previous year</u>
	EUR	EUR
Operation of the recycling plant	853,564.59	874,263.97
Research orders	42,563.50	26,884.00
Other sales	85,824.71	21,064.15
	<u>981,952.80</u>	<u>922,212.12</u>

Sales are generated with customers in Germany and the European Union; the transaction currency is the euro.

The other own work capitalised in 2022 of EUR 17,810,233.72 essentially results from the expansion and optimisation of facilities in Dillingen/Saar. They relate primarily to the detail engineering and the construction of pyrolysis lines 2 and 3 at EUR 16,963 thousand to the pelletiser for pyrolysis coke at EUR 719 thousand and to improvements to the plants in operation at EUR 120 thousand.

The own work includes the total expense for internally generated tangible assets for the year, primarily comprising the use of materials (EUR 15,802 thousand; previous year: EUR 1,865 thousand), third-party services (EUR 1,160 thousand; previous year: EUR 302 thousand) and own work by Pyrum staff measured at full cost (EUR 848 thousand; previous year: EUR 640 thousand).

The other operating income of EUR 1,318,003.19 (previous year: EUR 1,106,232.21) essentially includes investment grants of EUR 10 thousand (previous year: EUR 262 thousand) and ongoing research project grants of EUR 1,024 thousand (previous year: EUR 432 thousand). Moreover, insurance recoveries are included at EUR 1 thousand (previous year: EUR 246 thousand).

The income from currency translation in the Group and at Pyrum Innovations AG amounts to EUR 0.00 (previous year: EUR 7,526.83).

Personnel expenses include all wages and salaries of the staff and the Executive Board, expenses for temporary work and mini jobs, and the employer's share of social security costs.

Pension costs amount to EUR 5,208.00 (previous year: EUR 5,208.00).

Other operating expenses break down as follows:

	<u>Financial year</u>	<u>Previous year</u>
	EUR	EUR
Private placement and listing	285,330.10	2,882,242.64
Current stock exchange (follow-up) costs	243,103.92	71,814.53
Financial statement, audit, legal and consulting expenses	666,778.93	720,547.00
Repairs and maintenance	873,109.07	665,419.30
Operating expenses	210,870.38	124,915.86
Rent for land and buildings and incidental expenses	322,156.61	236,487.39
Insurance, contributions, levies	293,486.77	154,079.08
Vehicle costs	216,024.76	169,129.62
Miscellaneous operating expenses	470,448.76	260,643.35
	<u>3,581,309.30</u>	<u>5,285,278.77</u>

## Disclosures on the income statement of Pyrum Innovations AG and on the Group

The other operating expenses attributable to Pyrum Innovations International S.A. include EUR 42,001.75 (previous year: EUR 18,147.30) in legal and consulting expenses, EUR 4,320.00 (previous year: EUR 1,938.71) in rent and incidental expenses as well as EUR 13,232.54 (previous year: EUR 2,010.28) in miscellaneous operating expenses.

Legal and consulting expenses also include technical, economic and tax consulting and analysis.

The extraordinary expenses comprise the expenses for the secondary listing in the Scale segment of Deutsche Börse AG, Frankfurt am Main, of EUR 285,330.10.

Total research and development expenses amounted to EUR 821 thousand in the financial year (previous year: EUR 725 thousand). EUR 19 thousand (previous year: EUR 99 thousand) of this amount is attributed to internally generated intangible assets.

EUR 9,155.68 (previous year: EUR 2,222.26) of the income from long-term loans reported in the financial assets in the annual financial statements of Pyrum Innovations AG relates to income from affiliated companies.

Interest and similar expenses include interest income from the discounting of provisions of EUR 32,159.86 (previous year: EUR 0.00).

The interest expenses essentially served to finance fixed assets. The expenses for interest on long-term provisions amount to EUR 2,835.53 (previous year: EUR 22,633.85) in the consolidated financial statements and EUR 0.00 (previous year: EUR 20,184.69) in the single-entity financial statements.

### Deferred taxes

To calculate deferred taxes on differences between the accounting carrying amounts of assets and liabilities and their tax carrying amounts or on tax loss carryforwards, the amounts of the resulting tax benefits and expenses at the time of reversal are measured using tax rates specific to the company and are not discounted. Differences due to consolidation adjustments are also taken into account. The tax rates used are 30.53% (Pyrum Innovations AG) and 27.19% (Pyrum Innovations International S.A.).

Deferred tax assets from tax loss carryforwards of Pyrum Innovations AG and Pyrum Innovations International S.A. were recognised in the amount of the excess of liabilities at the respective company after netting deferred tax assets and liabilities from temporary differences.

The corporation and trade tax loss carryforwards of Pyrum Innovations AG can be offset against future taxable profits indefinitely; at Pyrum Innovations International S.A. this period is limited to 17 years from the relevant year of origin.

The amounts of the deferred tax assets and liabilities are as follows:

	Financial year		Previous year	
	Pyrum Innovations Group EUR	Pyrum Innovations AG EUR	Pyrum Innovations Group EUR	Pyrum Innovations AG EUR
Loss carryforwards	530,949.00	199,709.00	635,896.00	222,087.00
Long-term provisions	316,880.00	48,267.00	316,109.00	48,267.00
Purchased intangible assets	-599,853.00	0.00	-681,651.00	0.00
Internally generated intangible assets	-23,882.00	-23,882.00	-29,979.00	-29,979.00
Property, plant, and equipment	-119,552.00	-119,552.00	-142,610.00	-142,610.00
Government grants	-104,542.00	-104,542.00	-97,765.00	-97,765.00
Remainder after netting	0.00	0.00	0.00	0.00

## VII. Related parties

Related parties have been defined in accordance with IAS 24.

The following are classed as related parties:

- all members of the Executive Board and the companies they control;
- all members of the Supervisory Board and the companies they control;
- all employees at the first level of management below the Executive Board and the companies they control; and,

on the basis of the amount of its investment, possibly with other factors, the shareholders BASF Antwerpen NV and Amel Holding S.A.

Pyrum Innovation International S.A. is similarly a related party and has also been an affiliated company since 7 October 2021. Until completion of the purchase agreement to acquire the property at the company's headquarters, UC Umwelt Consulting Immobilien GmbH, Dillingen/Saar, was also a related party as it is directly controlled by family members of a member of the Executive Board and had a significant business relationship with Pyrum Innovations AG in the form of a lease for land. It will no longer be carried as a related party in the future.

All transactions with related parties are entered into and carried out at arm's length.

Key transactions and relationships with related parties are described below:

In line with the convertible loan agreement entered into in September 2020, a further tranche of the BASF convertible loan in the amount of EUR 3.0 million was extended in the 2022 financial year (the balance as at 31 December 2022 is EUR 5.0 million). EUR 4.7 million (previous year EUR 1.88 million) of the convertible loan relates to the parent company. The loan is reported under other liabilities.

Interest-bearing loan liabilities continue to exist as before to the shareholder Benifin GmbH (EUR 103 thousand), the top executive of which is Alf Schmidt, chair of the Supervisory Board, and to the shareholder and Supervisory Board member Jürgen Opitz and the companies that he controls (totalling EUR 648 thousand).

Pyrum Innovations AG previously had a lease with UC Umwelt Consulting Immobilien GmbH for office and commercial space. The land at the company's headquarters was acquired on 1 April 2022 for a purchase price of EUR 2,750 thousand on the basis of an external expert opinion. The lease thus ceased to apply as at 1 April 2022.

## Cash flow statement disclosures

### VIII. Cash flow statement

Cash funds break down as follows:

	31 Dec. 2022	31 Dec. 2021
	EUR	EUR
Cash-in-hand and bank balances	12,725,508.05	34,446,013.72
less balances pledged as collateral	<u>-207,003.48</u>	<u>-207,003.48</u>
<b>Cash funds</b>	<b>12,518,504.57</b>	<b>34,239,010.24</b>

A bank balance of Pyrum AG in the amount of EUR 207,003.48 has been pledged as collateral for bank loans of Pyrum AG.

The cash flow from operating activities is presented using the indirect method.

Investments not directly recognised as cash flows were conducted in previous financial years by entering into hire-purchase agreements. The planned repayments are recognised as a cash outflow of the cash flow from financing activities.

### IX. Significant events after the balance sheet date

Pyrum Innovations AG was paid an investment grant of EUR 1.5 million in February 2023 to create new jobs in Dillingen/Saar.

The approval of the city council in Homburg/Saar to establish Pyrum's next company plant was also issued in February 2023. A reservation agreement for the future property was entered into in May 2023. This agreement includes a letter of intent for the purchase of the site, in which the purchase price and the infrastructure development costs have already been finalised and fixed.

After the specifications of the pelletising plant required by the customer were fulfilled in the first quarter of 2023 and the certificates and audits required in the automotive supply industry were finalised at the same time, the plant approval for the pelletised rCB was issued by Continental, which is a requirement for the series supplies to the Continental factories. It was thus possible to start the series supply in May 2023.

Pyrum Innovations AG signed a loan agreement for EUR 4 million with the shareholder BASF Antwerp NV in May 2023. The loan will be disbursed in four equal instalments in the period from May to August 2023.

### X. Other disclosures

#### 1. Employees

The average number of employees in the company was 63 in the reporting period (previous year: 51). Of these, 27 are industrial employees and 36 are salaried employees.

#### 2. Fees of the auditor of the annual and consolidated financial statements

The fee for the auditor of the consolidated financial statements for the 2022 financial year amounts to EUR 74 thousand; EUR 67 thousand of this is which for audits of financial statements, EUR 3 thousand is for other assurance services and EUR 4 thousand is for other services.

#### 3. Executive bodies of the company

##### The Supervisory Board

###### **Alf Schmidt**

Chairman

Managing Director of IBG Industrie-Beteiligungs-Gesellschaft mbH & Co. KG

###### **Manfred Alt**

Deputy Chairman

Of Counsel at ALT + Kollegen Steuerberatungsgesellschaft mbH

###### **Jürgen Opitz**

Managing Director of Satherm GmbH

###### **Jürgen Fischer** (up to 27 January 2022)

Managing Director of UHY FINOVA S.à.r.l.

###### **Matthias Lindner**

Division controller at BASF Petrochemicals Division

###### **Renata Bandov** (since 14 July 2022)

Executive Director (Syndikusrechtsanwältin) - Listing Service & Rule Enforcement at Deutsche Börse AG

The Supervisory Board member Matthias Lindner was seconded by the shareholder BASF Antwerpen NV on the basis of the right of secondment added to the Articles of Association on 9 September 2020.

The total remuneration of the Supervisory Board amounts to EUR 60,833.33 in the financial year 2022.

##### Member of the Executive Board

###### **Pascal Klein**

CEO

###### **Michael Kapf**

Deputy Chairman

Executive Board for IT & Personnel

###### **Kai Winkelmann** (since 1 April 2022)

CFO

Mr Kai Winkelmann was appointed as a further member of the Executive Board from 1 April 2022 at the meeting of the Supervisory Board on 29 March 2022.



## Other disclosures

The total remuneration granted to the Executive Board for its work in the financial year 2022 amounted to EUR 511,169.64.

### Preparation of the annual and consolidated financial statements

The Executive Board today prepared the annual and consolidated financial statements of Pyrum Innovations AG for the period from 1 January to 31 December 2022 and approved them for publication.

### Pyrum Innovations AG

Dillingen/Saar, 17 May 2023



Pascal Klein  
CEO



Michael Kapf  
Member of the  
Executive Board



Kai Winkelmann  
Member of the  
Executive Board

**Independent Auditor's Report**

To Pyrum Innovations AG  
Dillingen / Saar

**Opinions to the Annual Financial Statements and the Combined Management Report for the Financial Year 2022**

I have audited the annual financial statements of Pyrum Innovations AG, Dillingen / Saar, which comprise the balance sheet as at December 31, 2022 and the statement of income for the financial year from January 1 to December 31, 2022, and the combined Notes to the annual financial statements and group financial statements, including the recognition and measurement policies presented therein. In addition, I have audited the combined management report of Pyrum Innovations AG for the financial year from January 1 to December 31, 2022.

In my opinion, on the basis of the knowledge obtained in the audit,

- the accompanying annual financial statements comply, in all material respects, with the requirements of German commercial law applicable to business corporations and give a true and fair view of the assets, liabilities and financial position of the company and the group as at December 31, 2022 and of its financial performance for the financial year from January 1 to December 31, 2022 in compliance with German Legally Required Accounting Principles, and
- the accompanying combined management report as a whole provides an appropriate view of the company's position. In all material respects, this combined management report is consistent with the annual financial statements, complies with the German legal requirements and appropriately presents the opportunities and risks of future development.

Pursuant to Section 322 (3) sentence 1 HGB [Handelsgesetzbuch: German Commercial Code], I declare that my audit has not led to any reservations relating to the legal compliance of the annual financial statements and the combined management report.

**Opinions to the Group Financial Statements and the Combined Management Report for the Fiscal Year 2022**

I have audited the group financial statements of Pyrum Innovations AG and its subsidiary, which comprise the group balance sheet as at December 31, 2022, and the group statement of income, the group statement of changes in equity, and the group cash flow statement for the financial year from January 1 to December 31, 2022 and the combined Notes to the annual financial statements and group financial statements, including the recognition and measurement policies presented therein. In addition, I have audited the combined management report of Pyrum Innovations AG for the financial year from January 1 to December 31, 2022.

In my opinion, on the basis of the knowledge obtained in the audit,

- the accompanying group financial statements comply, in all material respects, with the requirements of German commercial law and give a true and fair view of the assets, liabilities and financial position of the group as at December 31, 2022 and of its

[translation of the sole authoritative German report]

financial performance for the financial year from January 1 to December 31, 2022 in compliance with German Legally Required Accounting Principles, and

- the accompanying combined management report as a whole provides an appropriate view of the group's position. In all material respects, this combined management report is consistent with the group financial statements, complies with the German legal requirements and appropriately presents the opportunities and risks of future development.

Pursuant to Section 322 (3) sentence 1 HGB, I declare that my audit has not led to any reservations relating to the legal compliance of the group financial statements and the combined management report.

#### **Basis for the Opinions**

I conducted my audit of the annual financial statements, the group financial statements, and the combined management report in accordance with Section 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). My responsibilities under those requirements and principles are further described in the "Auditor's Responsibilities for the Audit of the annual financial statements, the group financial statements, and the combined management report" section of my auditor's report. I am independent of the parent company and its subsidiaries in accordance with the requirements of German commercial and professional law, and I have fulfilled my other German professional responsibilities in accordance with these requirements. I believe that the evidence I have obtained is sufficient and appropriate to provide a basis for my opinions on the annual financial statements, the group financial statements, and the combined management report.

#### **Other Information**

The legal representatives are responsible for the other information. The other information comprises the remaining parts of the annual report of Pyrum Innovations AG from May 17, 2023.

My opinions on the annual financial statements the group financial statements, and the combined management report do not cover the other information and, accordingly, I do not express an opinion or any other form of assurance conclusion on it.

In connection with my audit, my responsibility is to read the other information referred to above and, in doing so, to consider whether the other information

- is materially inconsistent with the annual financial statements, the consolidated financial statements, the combined management report or my knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

If I conclude, based on the work I have performed, that there is a material misstatement of this other information, I am required to report on this fact. I have nothing to report in this regard.

#### **Responsibilities of the Legal Representatives and the Supervisory Board for the Annual Financial Statements, the Group Financial Statements and the Combined Management Report**

The legal representatives are responsible for the preparation of the annual financial statements that comply, in all material respects, with the requirements of German

[translation of the sole authoritative German report]

commercial law applicable to business corporations, for the preparation of the group financial statements that comply, in all material respects, with the requirements of German commercial law, and that the annual financial statements and the group financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the company and the group in compliance with German Legally Required Accounting Principles. In addition, the legal representatives are responsible for such internal control as they, in accordance with German Legally Required Accounting Principles, have determined necessary to enable the preparation of annual financial statements and the group financial statements that are free from material misstatement, whether due to fraud (i.e. fraudulent financial reporting and misappropriation of assets) or error.

In preparing the annual financial statements and the group financial statements, the legal representatives are responsible for assessing the company's and the group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting, provided no actual or legal circumstances conflict therewith.

Furthermore, the legal representatives are responsible for the preparation of the combined management report that, as a whole, provides an appropriate view of the company's and the group's position and is, in all material respects, consistent with the annual financial statements and the group financial statements, complies with the German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the legal representatives is responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a combined management report that is in accordance with the applicable German legal requirements, and are able to provide sufficient appropriate evidence for the assertions in the combined management report.

The Supervisory Board is responsible for overseeing the company's financial reporting process for the preparation of the annual financial statements, the group financial statements, and the combined management report.

**Auditor's Responsibilities for the Audit of the Annual Financial Statements, the Group Financial Statements, and the Combined Management Report**

My objectives are to obtain reasonable assurance about whether the annual financial statements and the group financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the combined management report as a whole provides an appropriate view of the company's and the group's position and, in all material respects, is consistent with the annual financial statements and the group financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes my opinions on the annual financial statements, on the group financial statements, and on the combined management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these annual financial statements, these group financial statements, and this combined management report.

[translation of the sole authoritative German report]



I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the annual financial statements, of the group financial statements, and of the combined management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.
- Obtain an understanding of internal control system relevant to the audit of the annual financial statements and the group financial statements and of arrangements and measures relevant of the audit of the combined management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems of the company and the group.
- Evaluate the appropriateness of accounting policies used by the legal representatives and the reasonableness of estimates made by the legal representatives and related disclosures.
- Conclude on the appropriateness of the legal representatives' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the company's or the group's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in the auditor's report to the related disclosures in the annual financial statements, the group financial statements, and the combined management report or, if such disclosures are inadequate, to modify my respective opinions. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the company or the group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the annual financial statements and the group financial statements, including the disclosures, and whether the annual financial statements and the group financial statements present the underlying transactions and events in a manner that the annual financial statements and the group financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the company and the group in compliance with German Legally Required Accounting Principles.
- I obtain sufficient appropriate audit evidence about the accounting information of the entities or business activities within the group to express an opinion on the group financial statements and on the combined management report. I am responsible for directing, supervising and performing the group audit. I am solely responsible for my audit opinions.
- Evaluate the consistency of the combined management report with the annual financial statements and the group financial statements, its conformity with [German] law and the view of the company's and the group's position it provides.
- Perform audit procedures on the prospective information presented by the legal representatives in the combined management report. On the basis of sufficient appropriate audit evidence I evaluate, in particular, the significant assumptions used by

[translation of the sole authoritative German report]

---

**Christian Hecht**  
Wirtschaftsprüfer Steuerberater

the legal representatives as a basis for prospective information, and evaluate the proper derivation of the prospective information from these assumptions. I do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

I communicate with the supervisory board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Eschborn, May 17, 2023

[original version signed by:]

[original version: professional seal]

Christian Hecht  
Wirtschaftsprüfer [German Public Accountant]

[translation of the sole authoritative German report]